

Project No. 1251-100

Crude Oil Tank Farms Project, Agrood Area 30 (Module-1)



System ID	030-EL-005
System Description	Substation 400V Low Voltage Motor Control Center System

Sr.	Pre-Commissioning and Commissioning Dossier Index	Applicable (Yes/No)
1	Mechanical Completion Certificate (MCC)	
2	Ready for Startup Certificate (RFSU)	
3	System Punch Lists	
4	System Limits Marked Up P&ID	
5	System Index	
6	Piping Pre-Commissioning	
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	6.02) Piping Pre-commissioning Check Lists	
7	Piping Commissioning	
	7.01) Service Test, GLT, CLT and N2 Purging Certificates	
	7.02) Piping Commissioning Check Lists	
Sr.	Pre-Commissioning and Commissioning Dossier Index	Applicable (Yes/No)
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	8.02) Equipment Drawings	
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	12.02) Electrical Drawings	
	12.03) Motor Datasheets	
	12.04) Electrical Cables Schedule	
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	14.02) Instrumentation Drawings	
	14.03) Electrical Drawings	

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Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-EL-005
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System Description	Substation 400V Low Voltage Motor Control Center System
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### 1-Mechanical Completion Certificate (MCC)



## SYSTEM MECHANICAL COMPLETION CERTIFICATE (MCC)

PROJECT TITLE : CRUDE OIL TANK FARM PROJECT (AGROOD AREA)

PROJECT No : 01251-100




SYSTEM NAME : Substation 400V Low Voltage Motor Control Center System

SYSTEM ID : 030-EL-005

### THIS IS TO CERTIFY THAT:

- THE ABOVE SYSTEM HAS BEEN FABRICATED, ERECTED, INSTALLED AND TESTED TO THE REQUIREMENTS OF THE CONTRACT DRAWINGS, SPECIFICATIONS, THE APPLICABLE CODES AND STANDARDS.
- ALL PRE-COMMISSIONING RELEVANT ACTIVITIES, TESTS, INSPECTIONS AND CHECKS HAVE BEEN CARRIED OUT FOR THIS SYSTEM AND FOUND ACCEPTABLE.
- Q/C DOCUMENTATION OF THE ABOVE SYSTEM HAS BEEN AUDITED BY THE CUSTOMER SITE QUALITY CONTROL AND FOUND COMPLETED.
- ALL PUNCH LIST ITEMS CATEGORY (A) IN THIS SUBSYSTEM WERE CLEARED.
- THIS SYTEM IS MECHANICALLY COMPLETED ON THE DATE 01/02/2021 AND READY FOR COMMISSIONING (RFC) WITH THE FOLLOWING EXCEPTIONS.

### EXCEPTIONS :

COMPANY	PETROJET	ENPPI	PMC
NAME	M. abdallah	Mohamed Abbas	
TITLE	P. c engineer	Site Mgr.	
SIGNATURE			
DATE	12/07/2021	12/4/2021	





Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-EL-005
System Description	Substation 400V Low Voltage Motor Control Center System

## 2- Ready for Startup Certificate (RFSU)

## READY FOR START UP CERTIFICATE

**PROJECT TITLE** : EGPC CRUDE OIL TANK FARMS PROJECT (AGROOD-02)

**PROJECT No.** : 1251-100

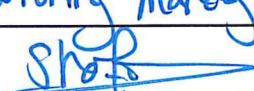
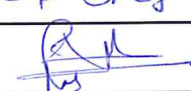
**SYSTEM /AREA /PLANT** : Substation 400V Low Voltage Motor Control Center System

**SYSTEM /AREA /PLANT No.** : 030-EL-005

**THIS IS TO CERTIFY THAT:**

- THE MENTIONED SYSTEM /AREA /PLANT IS READY FOR START UP WHERE ALL MECHANICAL WORKS, PRECOMMISSIONING AND COMMISSIONING ACTIVITIES HAVE BEEN SUCCESSFULLY COMPLETED.
- MECHANICAL COMPLETION CERTIFICATE(S) FOR THE MENTIONED SYSTEM / AREA / PLANT HAVE BEEN SIGNED.
- ISSUANCE OF THIS READY FOR START UP CERTIFICATE(S) SHALL NOT RELIEVE CONTRACTOR(S) FROM THEIR OBLIGATIONS TO COMPLETE THE REMAINING SYSTEMS NOR FROM THEIR WARRANTY OBLIGATIONS AND OTHER PROVISIONS OF THE CONTRACT.
- THE FOLLOWING EXCEPTIONS AGREED TO BE CLEARED AFTER START UP AND WILL NOT PREVENT START UP ACTIVITIES.

**EXCEPTIONS:**

COMPANY	CONSORTIUM	PPC
NAME	Ahmed El Shafie	Mohamed Ibrahim
TITLE	Commissioning Manager	Elec. eng
SIGNATURE		
DATE	30-6-2021	4-7-2021





Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-EL-005
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### 3- System Punch Lists

**PROJECT TITLE : CRUDE OIL TANK FARM PROJECT (AGROOD AREA)**

PROJECT NUMBER : 01251-100

**DISCIPLINE:** Electrical

**SYSTEM NAME:** Substation 400V Low Voltage Motor Control Center System

SYSTEM ID: 030-EL-05

**SUB-SYSTEM NAME:**

SUB-SYSTEM ID:

[illegible]

CAT: CATEGORY(A,B,C) ,ACTION BY: (ENPPI,CONST.CONTRACTOR,SUPPLIER.....) , DISP: DISCIPLINE(PIP,MECH,ELECT,INST.....)

COMPANY	PTJ	ENPPI	PMC
NAME	Sobhy Saleem	<i>[Signature]</i>	Mohamed Ibrahim
SIGN.	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>
DATE	28-3-2021		28-3-2021





Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-EL-005
System Description	Substation 400V Low Voltage Motor Control Center System

#### 4- System Limits Marked Up P&ID



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-EL-005
System Description	Substation 400V Low Voltage Motor Control Center System

## 5- System Index



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-EL-005
System Description	Substation 400V Low Voltage Motor Control Center System

## 6- Piping Pre-Commissioning





Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-EL-005
System Description	Substation 400V Low Voltage Motor Control Center System

## 6.01- Piping Test Packs



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-EL-005
System Description	Substation 400V Low Voltage Motor Control Center System

## 6.02- Piping Pre-commissioning Check Lists



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-EL-005
System Description	Substation 400V Low Voltage Motor Control Center System

## 7- Piping Commissioning



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-EL-005
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## 7.01- Service Test, GLT, CLT and N2 Purging Certificates





Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



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## 7.02- Piping Commissioning Check Lists



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



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## 8- Mechanical Pre-Commissioning



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-EL-005
System Description	Substation 400V Low Voltage Motor Control Center System

## 8.01- System Mechanical Index



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-EL-005
System Description	Substation 400V Low Voltage Motor Control Center System

## 8.02- Equipment Drawings





Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-EL-005
System Description	Substation 400V Low Voltage Motor Control Center System

### 8.03- Equipment Datasheets



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-EL-005
System Description	Substation 400V Low Voltage Motor Control Center System

## 8.04- Boxing-up Certificates



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-EL-005
System Description	Substation 400V Low Voltage Motor Control Center System

## 8.05- Grouting Certificates



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-EL-005
System Description	Substation 400V Low Voltage Motor Control Center System

## 8.06- Pre-Alignment Certificates





Project: 01251-100  
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System Description	Substation 400V Low Voltage Motor Control Center System

## 8.07- Mechanical Pre-Commissioning Checklists



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-EL-005
System Description	Substation 400V Low Voltage Motor Control Center System

## 9- Mechanical Commissioning



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-EL-005
System Description	Substation 400V Low Voltage Motor Control Center System

## 9.01- Final Alignment Certificates



Project: 01251-100  
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System ID	030-EL-005
System Description	Substation 400V Low Voltage Motor Control Center System

## 9.02- Motor Solo Run Certificates



Project: 01251-100  
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System Description	Substation 400V Low Voltage Motor Control Center System

### 9.03- Mechanical Run Test (MRT) Certificates





Project: 01251-100  
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## 9.04- Mechanical Commissioning Checklists



Project: 01251-100  
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System Description	Substation 400V Low Voltage Motor Control Center System

## 9.05- Mechanical Supplier Check Lists & Reports



Project: 01251-100  
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## 10- Instrumentation Pre-Commissioning



Project: 01251-100  
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System Description	Substation 400V Low Voltage Motor Control Center System

## 10.01- System Instrument Index



Project: 01251-100  
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System Description	Substation 400V Low Voltage Motor Control Center System

## 10.02- Instrument Data Sheets



Project: 01251-100  
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### 10.03- Instrument Cable Schedule





Project: 01251-100  
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## 10.04- System Instrumentation Wiring Diagram



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## 10.05- Hook-up Drawing (Mechanical & Pneumatic)



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## 10.06- Instruments Cables Schedule



Project: 01251-100  
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System ID	030-EL-005
System Description	Substation 400V Low Voltage Motor Control Center System

## 10.07- Instruments Cables Laying Certificates



Project: 01251-100  
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System ID	030-EL-005
System Description	Substation 400V Low Voltage Motor Control Center System

## 10.08- Instruments Cables Termination Certificates



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-EL-005
System Description	Substation 400V Low Voltage Motor Control Center System

## 10.09- Instruments Cables Testing Certificates



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-EL-005
System Description	Substation 400V Low Voltage Motor Control Center System

## 10.10- Instruments Calibration Certificates





Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-EL-005
System Description	Substation 400V Low Voltage Motor Control Center System

## 10.11- Instrument Loop Checks Certificates



Project: 01251-100  
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System Description	Substation 400V Low Voltage Motor Control Center System

## 10.12- Instrumentation Pre-Commissioning Check Lists



Project: 01251-100  
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### 10.13- Instrumentation Supplier Check Lists & Reports



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



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System Description	Substation 400V Low Voltage Motor Control Center System

## 11- Instrumentation Commissioning



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-EL-005
System Description	Substation 400V Low Voltage Motor Control Center System

## 11.01- Instrumentation Function Test Certificates



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-EL-005
System Description	Substation 400V Low Voltage Motor Control Center System

## 11.02- Instrumentation Supplier Check Lists & Reports



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-EL-005
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## 12- Electrical Pre-Commissioning





Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-EL-005
System Description	Substation 400V Low Voltage Motor Control Center System

## 12.01- System Electrical Index

	System Description	Discipline	Log Number	400V Low Voltage Switchgear	
030-EL-005	Substation 400V Low Voltage Motor Control Centre	Electrical	030-SUB-LVSWG-1	Checklist	EL-04 A /EL-30 A
030-EL-005	Substation 400V Low Voltage Motor Control Centre	Electrical	030-SUB-LVBD-1A	LV Cable	EL-31 A
030-EL-005	Substation 400V Low Voltage Motor Control Centre	Electrical	030-SUB-LVBD-1B	LV Cable	EL-31 A
030-EL-005	Substation 400V Low Voltage Motor Control Centre	Electrical	C1-030-SUB-LVSWG-1A	LV Cable	EL-31 A
030-EL-005	Substation 400V Low Voltage Motor Control Centre	Electrical	C1-030-SUB-LVSWG-1B	LV Cable	EL-31 A
030-EL-005	Substation 400V Low Voltage Motor Control Centre	Electrical	C2-030-SUB-LVSWG-1A	LV Cable	EL-31 A
030-EL-005	Substation 400V Low Voltage Motor Control Centre	Electrical	C2-030-SUB-LVSWG-1B	LV Cable	EL-31 A
030-EL-005	Substation 400V Low Voltage Motor Control Centre	Electrical	C3-030-SUB-LVSWG-1A	LV Cable	EL-31 A
030-EL-005	Substation 400V Low Voltage Motor Control Centre	Electrical	C3-030-SUB-LVSWG-1B	LV Cable	EL-31 A
030-EL-005	Substation 400V Low Voltage Motor Control Centre	Electrical	D-030-SUB-LVSWG-1A	LV Cable	EL-31 A
030-EL-005	Substation 400V Low Voltage Motor Control Centre	Electrical	D-030-SUB-LVSWG-1B	LV Cable	EL-31 A
030-EL-005	Substation 400V Low Voltage Motor Control Centre	Electrical	P1-030-SUB-LVSWG-1A	LV Cable	EL-31 A
030-EL-005	Substation 400V Low Voltage Motor Control Centre	Electrical	P1-030-SUB-LVSWG-1B	LV Cable	EL-31 A

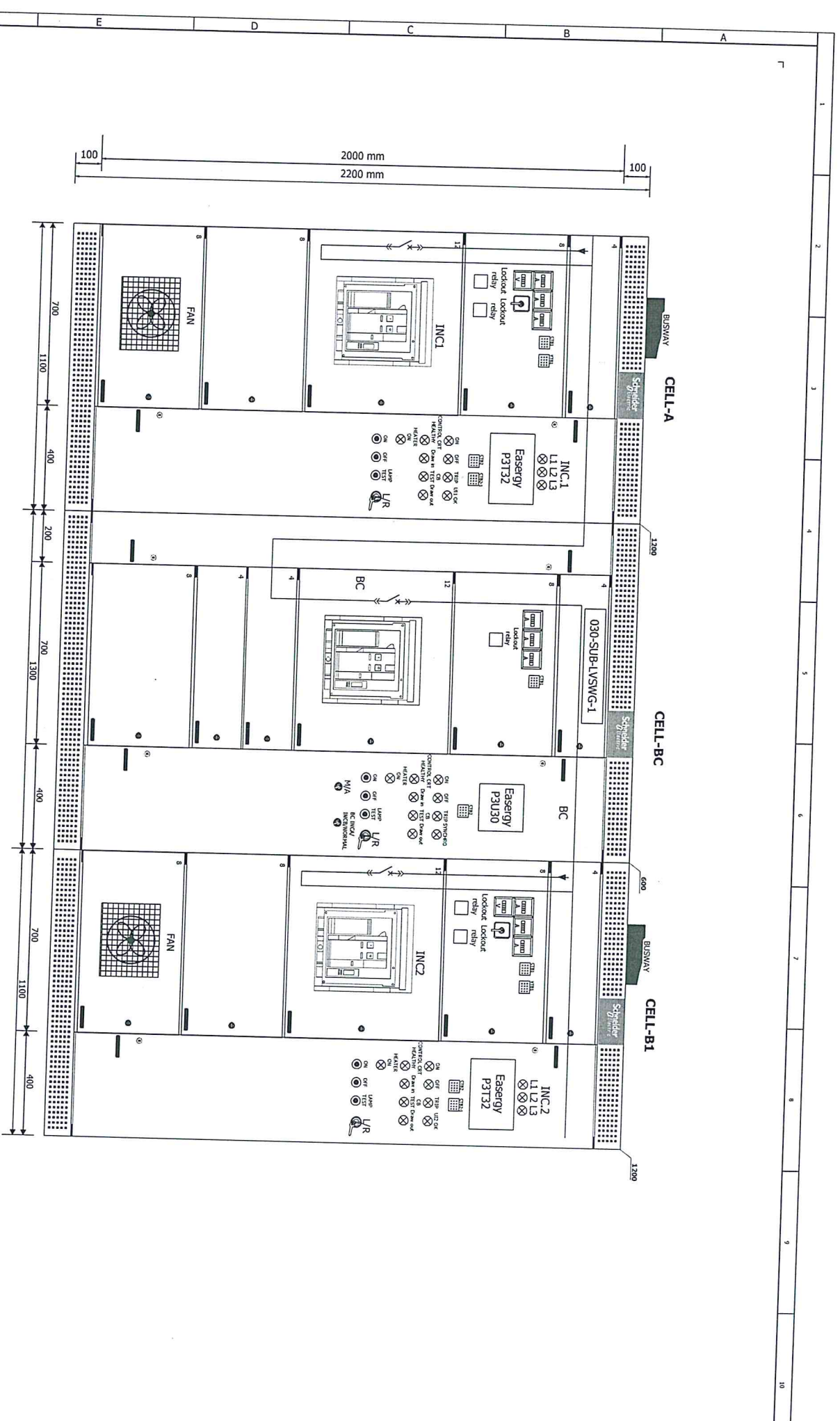


Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-EL-005
System Description	Substation 400V Low Voltage Motor Control Center System

## 12.02- Electrical Drawings



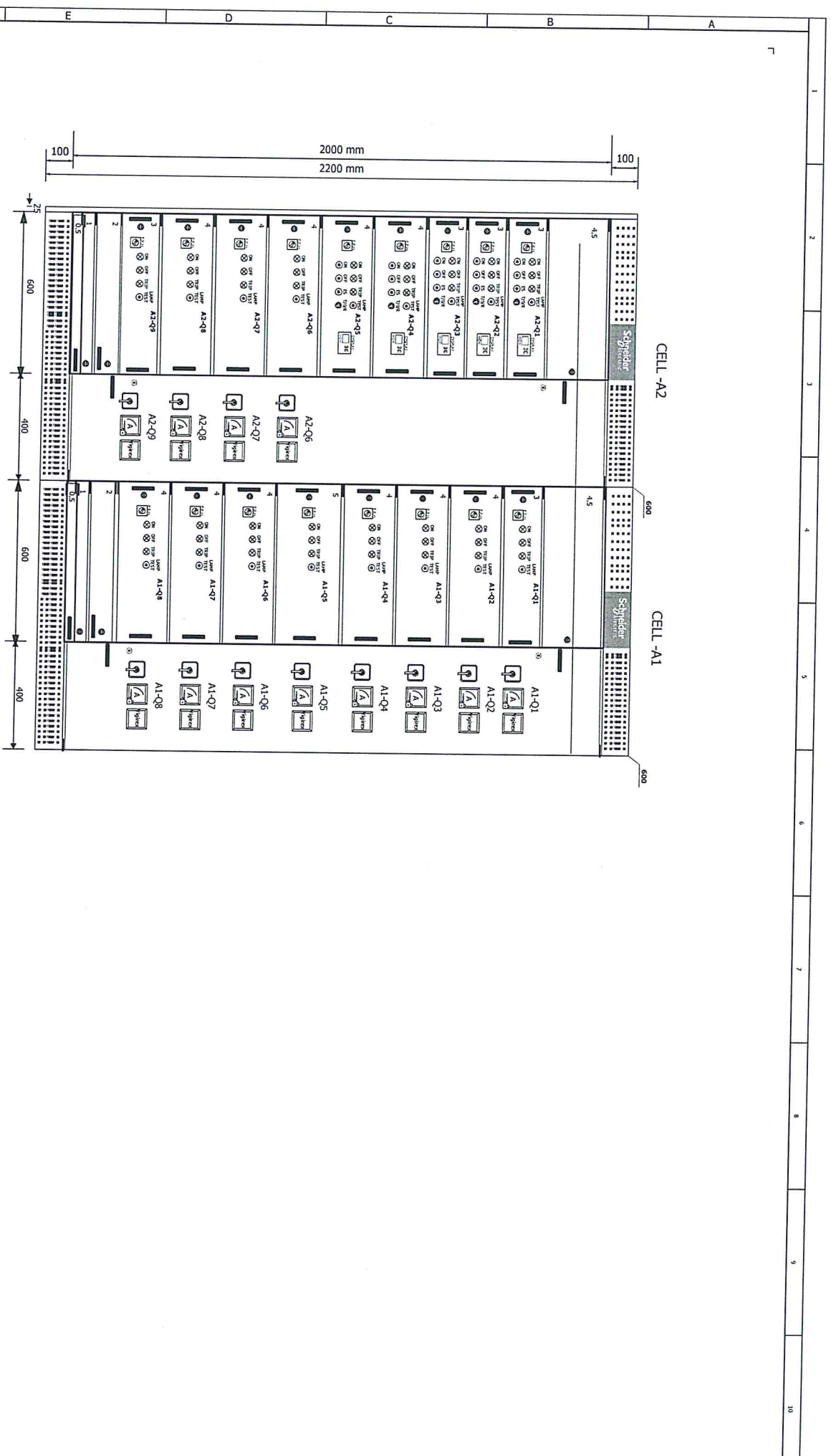
Rev.	Date	Page revision description	Rev.	Date	Page revision description
C	29 Jul 2020	Issue for Production			
B	16 Jun 2020	Issue for Production			
A	7 May 2020	FIRST ISSUE			

Customer name	Customer description	Project description	Page description	Checked By	Approved By	Item Number	Page
Schneider Electric NEA	ENPPI	EGPC Crude oil Tank Farm	Layout With Doors	Mahmoud	Ahmed Saleh	1-5	2
							3
							4
							5
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							7
							8
							9
							10







C		29 Jul 2020	Issue for Production	Schneider Electric NEA		Customer name	ENPPI	Page description		Checked by	Approved by	Item Number	Page
B		16 Jun 2020	Issue for Production	Schneider Electric		Project description	EGPC Crude oil Tank Farm	Layout With Doors		Mahmoud	Ahmed Saleh	1-5	Total pages
A		7 May 2020	FIRST ISSUE					- Agrod Area 030-SUB-LVSWG-1		Project No.	ETD Number	3244494	Revision
Rev.		Date	Page revision description	Rev.		Date	Page revision description						











Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-EL-005
System Description	Substation 400V Low Voltage Motor Control Center System

## 12.03- Motor Datasheets



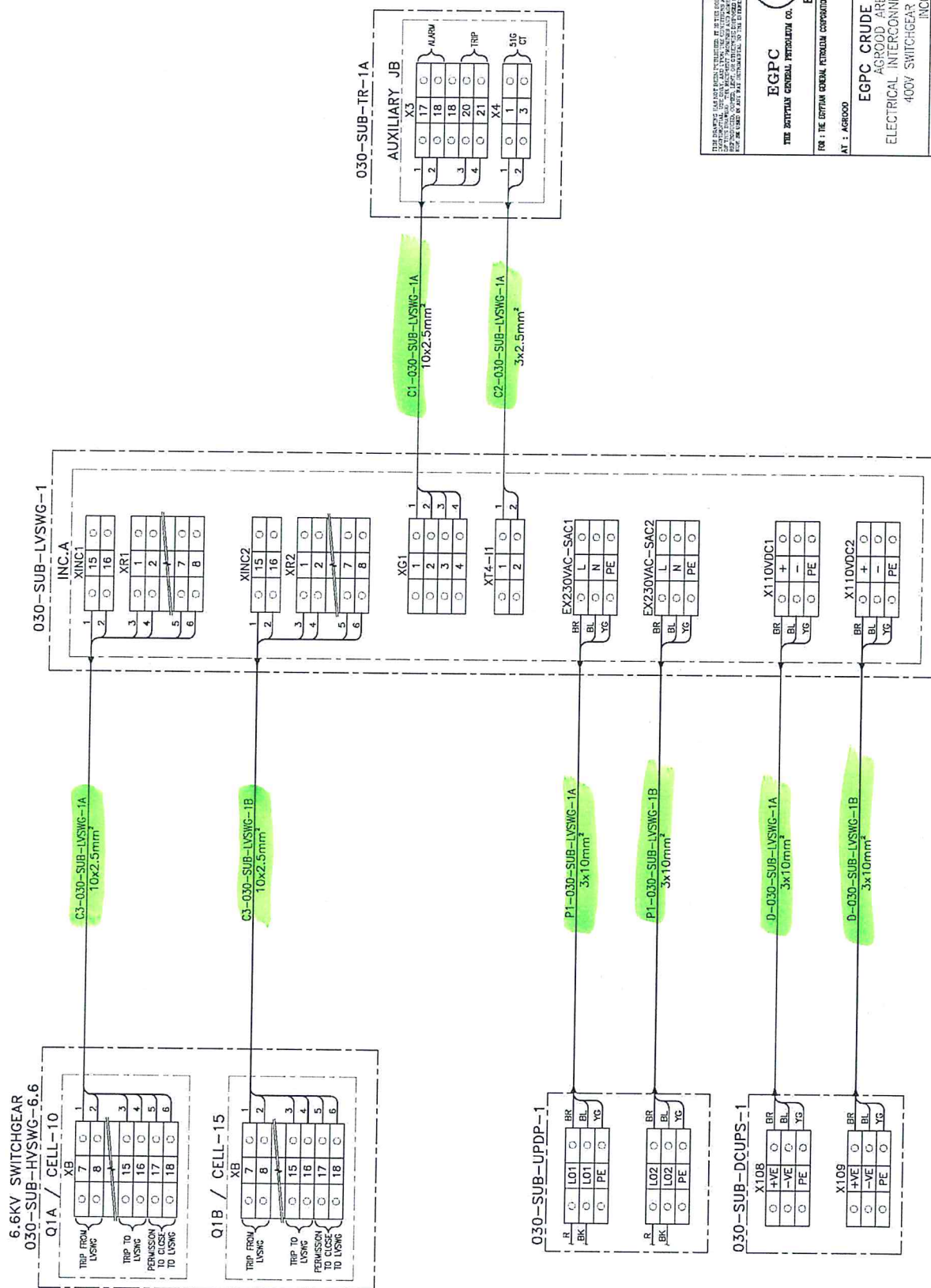
Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-EL-005
System Description	Substation 400V Low Voltage Motor Control Center System


## 12.04- Electrical Cables Schedule

PAGE	Cable Mark	GL1	FROM	TO	GL2	CABLE Service	Service Voltage	KW	Size	Type	L
13	C1-030-SUB-LVSWG-1A	WP	030-SUB-TR-1A (AUX JB)	030-SUB-LVSWG-1 (INC-A)	WP	ALARM/ TRIP SIGNAL			10x2.5	C1	25
13	C2-030-SUB-LVSWG-1A	WP	030-SUB-TR-1A (AUX JB)	030-SUB-LVSWG-1 (INC-A)	WP	5IG CT			3x2.5	C1	25
13	C3-030-SUB-LVSWG-1A	WP	030-SUB-LVSWG-1 (INC-A)	030-SUB-LVSWG-6.6 (Q1A)	WP	INTERTRIP			10x2.5	C1	25
13	C4-030-SUB-LVSWG-1B	WP	030-SUB-TR-1B (AUX JB)	030-SUB-LVSWG-1 (INC-B)	WP	ALARM/ TRIP SIGNAL			10x2.5	C1	25
13	C2-030-SUB-LVSWG-1B	WP	030-SUB-TR-1B (AUX JB)	030-SUB-LVSWG-1 (INC-B)	WP	5IG CT			3x2.5	C1	25
13	C3-030-SUB-LVSWG-1B	WP	030-SUB-LVSWG-1 (INC-B)	030-SUB-LVSWG-6.6 (Q1B)	WP	INTERTRIP			10x2.5	C1	25
13	P1-030-SUB-LVSWG-1A	WP	030-SUB-UPDP-1 (L01)	030-SUB-LVSWG-1 (INC-A)	WP	1PH POWER FEEDER	230VAC	2	3x10	3E	35
13	P1-030-SUB-LVSWG-1B	WP	030-SUB-UPDP-1 (L02)	030-SUB-LVSWG-1 (INC-B)	WP	1PH POWER FEEDER	230VAC	2	3x10	3E	35
13	D-030-SUB-LVSWG-1A	WP	030-SUB-DCUPS-1	030-SUB-LVSWG-1 (INC-A)	WP	DC FEEDER	110VDC	0.5	3x10	3D	45
13	D-030-SUB-LVSWG-1B	WP	030-SUB-DCUPS-1	030-SUB-LVSWG-1 (INC-B)	WP	DC FEEDER	110VDC	0.5	3x10	3D	45



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EGPC

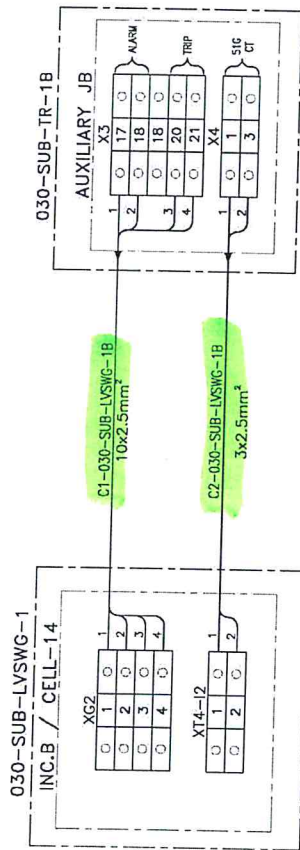
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 AT : AGROOD

EGPC CRUDE OIL TANK FARM  
AGROOD AREA (MODULE-1)  
ELECTRICAL INTERCONNECTION & WIRING DIAGRAM  
400V SWITCHGEAR (Q30-SUB-LVSWG-1)

الشركة الهندسية للبناءات البرتولية والكيمياوية

CALL	DOCUMENT NUMBER	SHEET	REVISION
NONE	01251-100-030-EWI-001	014 OF 078	1

SUBSTATION AND CONTROL BUILDING  
 SWITCHGEAR ROOM  
 SUBSTATION AND CONTROL BUILDING  
 TRANSFORMER BAY



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 AT : AGROOD

لجمل : الهيئة العامة للغازات البترولية  
 الموقع : أجروود

EGPC CRUDE OIL TANK FARM  
 AGROOD AREA (MODULE-1)  
 ELECTRICAL INTERCONNECTION & WIRING DIAGRAM  
 400V SWITCH-GEAR (030-SUB-LVSWG-1)  
 INCOMER.B

الشركة العامة للغازات البترولية والكيمياوية  
**Enppi**  
 ENGINEERING FOR THE PETROLEUM AND PROCESS INDUSTRIES

SCALE: NONE | 01251-100-030-EWI-001 | 015 OF 078 | 0

AS SIZE 201 X 298



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-EL-005
System Description	Substation 400V Low Voltage Motor Control Center System

## 12.05- Electrical Cables Laying Certificates







Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



System ID	030-EL-005
System Description	Substation 400V Low Voltage Motor Control Center System

## 12.06- Electrical Cables Testing Certificates





EGPC CRUDE OIL TANK FARM



INSPECTION AND TEST REPORT FOR

### CABLE INSULATION RESISTANCE TEST

INSPECTION REPORT NUMBER

PTJ-ELE-RFI-

INSPECTION DATE & TIME

10/04/2021

DOCUMENT NO.

ITR-EL-0006B

DISCIPLINE

ELEC

SYSTEM NO.:

SHEET NO

INSTRUMENT TYPE:

HIGH VOLTAGE INSULATION TESTER-SANWA-

SERIAL:

17015900385

SERVICE VOLTAGE:

24

TEST VOLTAGE:

500

AREA / PACKAGE:

NO	Item/Tag NO.	CABLE SIZE	Continuity Test	pair conductors	conductors to armor	Shield to Shield	All Conductors-GND	Overall Shield -GND	Armor -GND	RESULT	
										Pass	FAIL
1	C7-030-SUB-HVSWG-	10x2.5	✓	500 ✓				>500 MΩ		✓	
2	C7-030-SUB-HVSWG-	10x2.5	✓	500 ✓				>500 MΩ		✓	
3	C1-030-SUB-PFC-1A	3x2.5	✓	500 ✓				>500 MΩ		✓	
4	C2-030-SUB-PFC-1A	12x2.5	✓	500 ✓				>500 MΩ		✓	
5	C1-030-SUB-PFC-1B	3x2.5	✓	500 ✓				>500 MΩ		✓	
6	C2-030-SUB-PFC-1B	12x2.5	✓	500 ✓				>500 MΩ		✓	
7	C3-030-SUB-LVSWG-1A	10x2.5	✓	500 ✓				>500 MΩ		✓	
8	C3-030-SUB-LVSWG-1B	10x2.5	✓	500 ✓				>500 MΩ		✓	
9	C3-030-SUB-ACUPS-1	1x3x1.5	✓	500 ✓				>500 MΩ		✓	
10	C4-030-SUB-ACUPS-1	1x3x1.5	✓	500 ✓				>500 MΩ		✓	
11	C3-030-SUB-DCUPS-1	1x3x1.5	✓	500 ✓				>500 MΩ		✓	
12	C4-030-SUB-DCUPS-1	1x3x1.5	✓	500 ✓				>500 MΩ		✓	

Remarks :-

Reference

NAME :		PETROJET		ENPPY		PMC	
SIGNATURE							
DATE							

ITR-EL-0006B



Enppi

EGPC CRUDE OIL TANK FARM



INSPECTION AND TEST REPORT FOR

### CABLE INSULATION RESISTANCE TEST

SYSTEM NO.:

INSPECTION REPORT NUMBER

PTJ-ELE-RFI-208

INSPECTION DATE & TIME  
02/05/2021

DOCUMENT NO.  
ITR-EL-0006B

DISCIPLINE  
ELEC

SHEET NO

INSTRUMENT TYPE:

HIGH VOLTAGE INSULATION TESTER-SANWA-

SERIAL:  
17015900385

SERVICE VOLTAGE:  
24

TEST VOLTAGE:  
500

AREA / PACKAGE:

MG5000

NO	Item/Tag NO.	CABLE SIZE	Continuity Test	pair conductors	conductors to armor	Shield to Shield	All Conductors-GND	Overall Shield-GND	Armor-GND	RESULT	
13	C4-030-SUB-HVSWG-6-6B	10x2.5	✓	0.0			0.0			✓	
14	C5-030-SUB-HVSWG-6-6B	10x2.5	✓	0.0			0.0			✓	
15	C1-030-SUB-LVSWG-1A	10x2.5	✓	0.0			0.0			✓	
16	C1-030-SUB-LVSWG-1B	10x2.5	✓	0.0			0.0			✓	
17	C1-030-PM-04A	10x2.5	✓	0.0			0.0			✓	
18	C1-030-PM-04B	10x2.5	✓	0.0			0.0			✓	
19	C1-030-PM-05A	10x2.5	✓	0.0			0.0			✓	
20	C1-030-PM-05B	10x2.5	✓	0.0			0.0			✓	
21	C3-030-SUB-AVR-1A	1x3x2.5	✓	0.0			0.0			✓	
22	C3-030-SUB-AVR-1B	1x3x2.5	✓	0.0			0.0			✓	
23	C6-030-SUB-HVSWG-6-6A	3x2.5	✓	0.0			0.0			✓	
24	C6-030-SUB-HVSWG-6-6B	3x2.5	✓	0.0			0.0			✓	

Remarks :-

Reference

NAME :	PETROJET	ENPPI	PMC
SIGNATURE	Ahmed Hassan	Islam Sherif	
DATE	01/06/2021		

ITR-EL-0006B





ENPPI

EGPC CRUDE OIL TANK FARM



INSPECTION AND TEST REPORT FOR

CABLE INSULATION RESISTANCE TEST

SYSTEM NO.:

INSPECTION REPORT NUMBER

INSPECTION DATE & TIME

DOCUMENT NO.

DISCIPLINE

SHEET NO

PTJ-ELE-RFI- 208

02/06/2021

ITR-EL-0006B

ELEC

INSTRUMENT TYPE:

SERIAL:

SERVICE VOLTAGE:

TEST VOLTAGE:

AREA / PACKAGE:

HIGH VOLTAGE INSULATION TESTER-SANWA-MG5000

17015900385

24

500

NO	Item/Tag NO.	CABLE SIZE	Continuity Test	pair conductors	conductors to armor	Shield to Shield	All Conductors-GND	Overall Shield-GND	Armor-GND	RESULT	
										Pass	FAIL
25	C2-030-SUB-LVSWG-1A	3x2.5	✓	0.0			0.0			✓	
26	C2-030-SUB-LVSWG-1B	3x2.5	✓	0.0			0.0			✓	
27	C8-030-SUB-HVSWG-6.6A	8x(3x2.5)	✓	0.0			0.0			✓	
28	C8-030-SUB-HVSWG-6.6B	8x(3x2.5)	✓	0.0			0.0			✓	
29	C9-030-SUB-HVSWG-6.6A	3x2.5	✓	0.0			0.0			✓	
30	C10-030-SUB-HVSWG-6.6A	3x2.5	✓	0.0			0.0			✓	
31	C9-030-SUB-HVSWG-6.6B	3x2.5	✓	0.0			0.0			✓	
32	C10-030-SUB-HVSWG-6.6B	3x2.5	✓	0.0			0.0			✓	
33											
34											
35											
36											

Remarks :-

Reference

NAME :	PETROJET	ENPPI	PMC
SIGNATURE	Ahmed Hassan	Islam Sherif	
DATE	01/06/2021		

ITR-EL-0006B



EGPC CRUDE OIL TANK FARM



## CABLE INSULATION RESISTANCE TEST

SYSTEM NO.:

SHEET NO.

DISPLINE  
ELECTRICAL




TEST VOLTAGE: 1000

AREA / PACKAGE:  
SUBSTATION

[illegible]

Remarks :-



Referance :-

	PETROJET	ENPPI	PMC
			

ITR-EL-0006A



# 12.07- Electrical Cables Termination Certificates

System ID	030-EL-005
System Description	Substation 400V Low Voltage Motor Control Center System
<div>  <div> Project: 01251-100  CRUDE OIL TANK FARM PROJECT (AGROOD AREA) </div>  </div>	



EGPC CRUDE OIL TANK FARM

Project No: 01251-100-030  
Document No: ITR-QC-0001  
Revision No.: 00

Owner: Egyptian General Petroleum Corporation (EGPC)

CONSORTIUM (ENPPI / PETROJET)

Contractor

## REQUEST FOR INSPECTION

CABLE TERMINATION AND TEST

ELEC

DISCIPLINE :

PTJ-ELE-RFI-

NOTIFICATION NO. :

27/03/2021

DATE :

NO.	DESCRIPTION	LOCATION	DATE / TIME	INSPECTION			REMARKS
				PETROJET	ENPPI	PMC	
18	D2-030-SUB-ACUPS-1-BAT-A	SUBSTATION					
19	D1-030-SUB-ACUPS-1-BAT-B	SUBSTATION					
20	D2-030-SUB-ACUPS-1-BAT-B	SUBSTATION					
21	D1-030-SUB-DCUPS-CB-A	SUBSTATION					
22	D2-030-SUB-DCUPS-CB-A	SUBSTATION					
23	D1-030-SUB-DCUPS-CB-B	SUBSTATION					
24	D2-030-SUB-DCUPS-CB-B	SUBSTATION					
25	D1-030-SUB-DCUPS-1-BAT-A	SUBSTATION					
26	D2-030-SUB-DCUPS-1-BAT-A	SUBSTATION					
27	D1-030-SUB-DCUPS-1-BAT-B	SUBSTATION					
28	D2-030-SUB-DCUPS-1-BAT-B	SUBSTATION					
29	P-030-SUB-LPDP-1	SUBSTATION					
30	P-030-SUB-ASP-1	SUBSTATION					
31	P-030-EPM1-UPDP-1	SUBSTATION					
32	P1-030-SUB-ACUPS-1	SUBSTATION					
33	P-030-SUB-IRP-1	SUBSTATION					
34	D-030-SUB-LVSWG-1A	SUBSTATION					

NOTE:

Inspection result : A - Approved B - Reject C - Approved with Comment

	PETROJET	ENPPI	PMC
NAME :			
SIGNATURE			
DATE			

ITR-QC-0001



EGPC CRUDE OIL TANK FARM

Owner : Egyptian General Petroleum Corporation (EGPC)  
Project No: 01251-100-030Contractor CONSORTIUM (ENPPI / PETROJET)  
Document No: ITR-QC-0001  
Revision No.: 00

## REQUEST FOR INSPECTION

ACTIVITY : CABLE TERMINATION AND TEST

NOTIFICATION NO. : PTJ-ELE-RFI- DISCIPLINE : ELEC

DATE : 27/03/2021

NO.	DESCRIPTION	LOCATION	DATE / TIME	PETROJET	ENPPI	PMC	REMARKS
35	D-030-SUB-LVSWG-1B	SUBSTATION					
36	D-030-SUB-IRP-1	SUBSTATION					
37	P1-030-SUB-LVSWG-1A	SUBSTATION					
38	P1-030-SUB-LVSWG-1B	SUBSTATION					
39	C1-030-SUB-ACUPS-1	SUBSTATION					
40	C2-030-SUB-ACUPS-1	SUBSTATION					
41	C1-030-SUB-DCUPS-1	SUBSTATION					
42	C2-030-SUB-DCUPS-1	SUBSTATION					
43	P-030-SUB-AVR-1A	SUBSTATION					
44	P-030-SUB-AVR-1B	SUBSTATION					
45	P1-030-SUB-DCUPS-1	SUBSTATION					
46	P-030-SUB-UPDP-1	SUBSTATION					
47	P-030-SUB-DCUPS-1A	SUBSTATION					
48	P-030-SUB-DCUPS-1B	SUBSTATION					



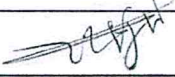
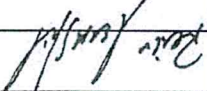
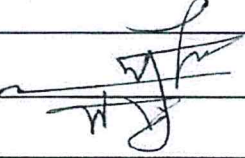
NOTE:

Inspection result : A - Approved B - Reject C - Approved with Comment

NAME :	PETROJET	ENPPI	PMC
SIGNATURE			
DATE			

ITR-QC-0001



		<b>EGPC CRUDE OIL TANK FARM</b>			
<b>INSPECTION AND TEST REPORT FOR</b>					
<b>CABLE TERMINATION AND SPLICING</b>					
SYSTEM NO.:		INSPECTION DATE & TIME		PTJ-ELE-RFI-	
DISCIPLINE		ITR NUMBER		27/03/2021	
ELEC		ITR-EL-0009		For All Cables tags in PTJ-ELE-RFI-	
SHEET NO		1 OF 1		Item/Tag NO.	
Type :-		Core:		Size:	
Description of check		ACCEPT		REJECT	
NO.		RESULT		N/A.	
1		Check cable glands are correct type and size as per cable schedule.		✓	
2		Check there are no damages to cores, termination chamber layout is satisfactory, core identification is correct, crimped and pins satisfactory.		✓	
3		Check cable tag is done correctly.		✓	
4		Test and confirm conductor, phase continuity.		✓	
5		Check insulation resistance test (megger) is completed *1		✓	
6		Check Hi-pot test is completed, only for MV/HV cables *11		✓	
7		Connect all cores at both ends and confirm all connections are correct as per termination diagram.		✓	
8		Confirm spare cores, screens are earthed and conform to design drawings/specifications		✓	
9		Check enclosure cover is installed, no damages and no bolts are missing		✓	
10		Calibration test certificate of testing equipment to be checked.		✓	
Remarks :					
*1 : ITR-EL-006A/B					
*11 : ITR-EL-008					
DATE					
SIGNATURE		NAME :		PETROJET	
					
ENPPI		PMC		ITR-EL-0009	





Enppi

EGPC CRUDE OIL TANK FARM



Owner :

Egyptian General Petroleum Corporation (EGPC)

Project No: 01251-100-030  
Revision No: 01251-100-031

Document No: ITR-QC-0001  
Revision No: 00

## REQUEST FOR INSPECTION

CABLE TERMINATION AND TEST

ACTIVITY :

NOTIFICATION NO. : PTJ-ELE-RFI-169  
DISCIPLINE : ELEC

DATE :

10/04/2021

NO.	DESCRIPTION	LOCATION	DATE / TIME	INSPECTION	REMARKS
1	P1-030-SUB-HVSWG-6.6A	SUBSTATION			
2	P1-030-SUB-HVSWG-6.6B	SUBSTATION			
3	D-030-SUB-HVSWG-6.6A	SUBSTATION			
4	D-030-SUB-HVSWG-6.6B	SUBSTATION			
5	C7-030-SUB-HVSWG-6.6A	SUBSTATION			
6	C7-030-SUB-HVSWG-6.6B	SUBSTATION			
7	P1-030-SUB-PFC-1A	SUBSTATION			
8	D-030-SUB-PFC-1A	SUBSTATION			
9	C1-030-SUB-PFC-1A	SUBSTATION			
10	C2-030-SUB-PFC-1A	SUBSTATION			
11	P1-030-SUB-PFC-1B	SUBSTATION			
12	D-030-SUB-PFC-1B	SUBSTATION			
13	C1-030-SUB-PFC-1B	SUBSTATION			
14	C2-030-SUB-PFC-1B	SUBSTATION			
15	C3-030-SUB-LVSWG-1A	SUBSTATION			
16	C3-030-SUB-LVSWG-1B	SUBSTATION			
17	C3-030-SUB-ACUPS-1	SUBSTATION			

NOTE:

Inspection result : A - Approved B - Reject C - Approved with Comment

PETROJET

ENPPI



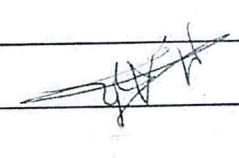
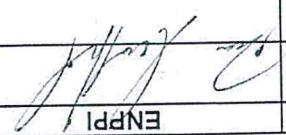
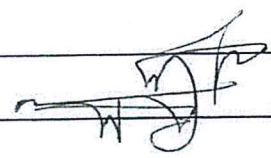
PMC

DATE

SIGNATURE

NAME :

ITR-QC-0001

			
<b>EGPC CRUDE OIL TANK FARM</b>			
<b>CABLE TERMINATION AND SPLICING</b>			
INSPECTION AND TEST REPORT FOR			
INSPECTION REPORT NUMBER PTJ-ELE-RFI-		INSPECTION DATE & TIME 10/04/2021	
ITR NUMBER ITR-EL-0009		DISPLINE ELEC	
SHEET NO 1 OF 1		SYSTEM NO.:	
Item/Tag NO. For All Cables tages in PTJ-ELE-RFI-			
Type :-		Core:	Size:
Description of check			
NO.	Description of check	ACCEPT	REJECT
1	Check cable glands are correct type and size as per cable schedule.	✓	
2	Check there are no damages to cores, termination chamber layout is satisfactory, core identification is correct, crimped and pins	✓	
3	Check cable tag is done correctly.	✓	
4	Test and confirm conductor, phase continuity.	✓	
5	Check insulation resistance test (megger) is completed *	✓	
6	Check Hi-pot test is completed, only for MV/HV cables **	✓	
7	Connect all cores at both ends and confirm all connections are correct as per termination diagram.	✓	
8	Confirm spare cores, screens are earthed and conform to design drawings/specifications	✓	
9	Check enclosure cover is installed, no damages and no bolts are missing	✓	
10	Calibration test certificate of testing equipment to be checked.	✓	
Remarks :			
*1 : ITR-EL-006A/B *11 : ITR-EL-008			
NAME :	PETROJET	ENPPI	PMC
SIGNATURE			
DATE			
ITR-EL-0009			



REQUEST FOR INSPECTION

ACTIVITY : CABLE TERMINATION AND TEST

NOTIFICATION NO. : PJ-ELE-RFI-208  
DISCIPLINE : ELEC

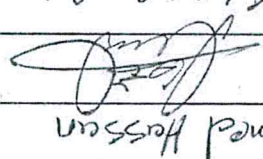
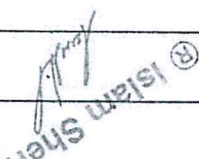
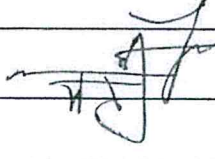
DATE : 02/06/2021

NO.	DESCRIPTION	LOCATION	DATE / TIME	PETROJET	ENPPI	PMC	REMARKS
-----	-------------	----------	-------------	----------	-------	-----	---------

1	C1-030-SUB-AVR-1A	SUBSTATION					
2	C2-030-SUB-PTA-1A	SUBSTATION					
3	C1-030-SUB-AVR-1B	SUBSTATION					
4	C2-030-SUB-PTA-1B	SUBSTATION					
5	C1-030-SUB-HVSWG-6.6A	SUBSTATION					
6	C2-030-SUB-HVSWG-6.6A	SUBSTATION					
7	C3-030-SUB-HVSWG-6.6A	SUBSTATION					
8	C4-030-SUB-HVSWG-6.6A	SUBSTATION					
9	C5-030-SUB-HVSWG-6.6A	SUBSTATION					
10	C1-030-SUB-HVSWG-6.6B	SUBSTATION					
11	C2-030-SUB-HVSWG-6.6B	SUBSTATION					
12	C3-030-SUB-HVSWG-6.6B	SUBSTATION					
13	C4-030-SUB-HVSWG-6.6B	SUBSTATION					
14	C5-030-SUB-HVSWG-6.6B	SUBSTATION					
15	C1-030-SUB-LVSWG-1A	SUBSTATION					
16	C1-030-SUB-LVSWG-1B	SUBSTATION					
17	C1-030-PM-04A	SUBSTATION					

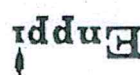
NOTE:

Inspection result : A - Approved B - Reject C - Approved with Comment

NAME :	Ahmed Hassan	PETROJET	ENPPI	PMC
SIGNATURE				
DATE	6/6/2021			



EGPC CRUDE OIL TANK FARM



Owner : Egyptian General Petroleum Corporation (EGPC)  
Project No: 01251-100-030  
Contractor CONSORTIUM (ENPPI / PETROJET)  
Document No: ITR-QC-0001  
Revision No.: 00

## REQUEST FOR INSPECTION

ACTIVITY : CABLE TERMINATION AND TEST

NOTIFICATION NO. : PTJ-ELE-RFI- 208 DISCIPLINE : ELEC

DATE : 02/06/2021

NO.	DESCRIPTION	LOCATION	DATE / TIME	PETROJET	ENPPI	PMC	REMARKS
18	C1-030-PM-04B	SUBSTATION					
19	C1-030-PM-05A	SUBSTATION					
20	C1-030-PM-05B	SUBSTATION					
21	C3-030-SUB-AVR-1A	SUBSTATION					
22	C3-030-SUB-AVR-1B	SUBSTATION					
23	P1-030-SUB-TR-1A	SUBSTATION					
24	P1-030-SUB-TR-1B	SUBSTATION					
25	P1-030-LPDP-CR-1	SUBSTATION					
26	P1-030-LPDP-CR-2	SUBSTATION					
27	P1-030-LPDP-CR-3	SUBSTATION					
28	C6-030-SUB-HVSWG-6.6A	SUBSTATION					
29	C6-030-SUB-HVSWG-6.6B	SUBSTATION					
30	C2-030-SUB-LVSWG-1A	SUBSTATION					
31	C2-030-SUB-LVSWG-1B	SUBSTATION					
32	P1-030-SUB-NER-1A	SUBSTATION					
33	P1-030-SUB-NER-1B	SUBSTATION					
34	P1-030-SUB-PTR-1A	SUBSTATION					



NOTE:

Inspection result : A - Approved B - Reject C - Approved with Comment

	PETROJET	ENPPI	PMC
NAME :	Ahmed Hassan		
SIGNATURE			
DATE	6/6/2021		

ITR-QC-0001



			
<b>EGPC CRUDE OIL TANK FARM</b>			
<b>INSPECTION AND TEST REPORT FOR</b>			
<b>CABLE TERMINATION AND SPLICING</b>			
SYSTEM NO.:		DISCIPLINE	
SHEET NO		ELEC	
1 OF 1		ITR-EL-0009	
INSPECTION REPORT NUMBER		02/06/2021	
PTJ-ELE-RFI-		For All Cables tags in PTJ-ELE-RFI-	
Item/Tag NO.		Core:	
Type :-		Size:	
Description of check			
NO.		RESULT	
1		ACCEPT	
Check cable glands are correct type and size as per cable schedule.		N/A	
2		ACCEPT	
Check there are no damages to cores, termination chamber layout is satisfactory, core identification is correct, crimped and pins satisfactory.		N/A	
3		ACCEPT	
Check cable tag is done correctly.		N/A	
4		ACCEPT	
Test and confirm conductor, phase continuity.		N/A	
5		ACCEPT	
Check insulation resistance test (megger) is completed *1		N/A	
6		REJECT	
Check Hi-pot test is completed, only for MV/HV cables *11		N/A	
7		ACCEPT	
Connect all cores at both ends and confirm all connections are correct as per termination diagram.		N/A	
8		ACCEPT	
Confirm spare cores, screens are earthed and conform to design drawings/specifications		N/A	
9		ACCEPT	
Check enclosure cover is installed, no damages and no bolts are missing		N/A	
10		ACCEPT	
Calibration test certificate of testing equipment to be checked.		N/A	
Remarks :			
*1 : ITR-EL-006A/B			
*11 : ITR-EL-008			
NAME :			
SIGNATURE			
DATE			
PETROJET		ENPPI	
PMC		ITR-EL-0009	

# Supplier will check final inspection & utilize torque certificate of all inter connection cable

# BAR's connection to Bus duct will be checked by supplier

(All Done)  
SAT

Inspection result: A - Approved B - Reject C - Approved with Comment

NOTE:

[illegible]

## LVSWG Panel Installation

ACTIVITY:

NOTIFICATION NO.

PTJ-RFI-EL-138

DISCIPLINE :

ELECTRICAL

3/7/2021

DATE:

## REQUEST FOR INSPECTION

Contractor

CONSORTIUM (ENPPI / PETROJET)

Document No: ITR-QC-0001  
Revision No. : 00

Owner:

Egyptian General Petroleum Corporation (EGPC)

Project No: 01251-100-030  
:01251-100-031



adduE

EGPC CRUDE OIL TANK FARM





NO.	INSPECTION			RESULT
	1	2	3	
1	Verify that equipment name plates are according to the corresponding drawing	✓	✓	ACCEPT
2	Inspect physical and mechanical condition of the equipment and all components for clear damage.	✓	✓	ACCEPT
3	Verify appropriate anchorage, required area clearances, physical damage, and correct alignment and cleanliness.	✓	✓	ACCEPT
4	Inspect all doors, panels, and sections for paint, dents, scratches, fit, and missing hardware.	✓	✓	ACCEPT
5	Verify that the barriers and covers are installed correctly.	✓	✓	ACCEPT
6	Verify that filters are in place and all ventilation openings are clear from any kind of obstacles.	✓	✓	ACCEPT
7	Verify that main bus bar is connected between the cells.	✓	✓	ACCEPT
8	Verify that the earth bar is connected between the cells and connected to the earth.	✓	✓	ACCEPT
9	Verify the tightness of accessible bolted electrical connections using the calibrated torque-wrench method	✓	✓	ACCEPT
10	After tightening each electrical connection to the appropriate torque, apply some Varnish between the nut and the screw (or else, between the screw's head and	✓	✓	ACCEPT
11	Confirm that lubricants have been correctly applied at the recommended locations.	✓	✓	ACCEPT
12	Inspect all mechanical indicating devices for correct operation.	✓	✓	ACCEPT
13	Verify that draw out disconnecting contacts and interlocks function correctly.	✓	✓	ACCEPT
14	Verify that fuse and/or circuit breaker size and type correspond to drawings.	✓	✓	ACCEPT
15	Verify that current and potential transformer ratios correspond to drawings.	✓	✓	ACCEPT
16	Verify that all the interconnection control wires between the cells have been made correctly reference to the control drawings	✓	✓	ACCEPT
17	Verify that customer connections to remote power, operators, interlocks, and indicators have been made.	✓	✓	ACCEPT

NAME:

PETROJET

ENPPI

PMC

SIGNATURE

Signature




Signature

Signature

DATE



REMARKS:

REFERENCE DOCUMENTS:

							
<b>Owner :</b> Egyptian General Petroleum Corporation (EGPC) Project No: 01251-100-030 Document No: ITR-QC-0001 Revision No. : 00		<b>Contractor</b> CONSORTIUM (ENPPI / PETROJET)					
<b>REQUEST FOR INSPECTION</b>							
<b>ACTIVITY :</b> LVSWG And Bus Duct Installation							
<b>NOTIFICATION NO. :</b> PTJ-RFI-EL-104		<b>DISCIPLINE :</b> ELECTRICAL					
<b>DATE :</b> 2/18/2021							
NO.	DESCRIPTION	LOCATION	DATE / TIME	PETROJET	ENPPI	PMC	REMARKS
1	031-SUB-LVSWG-1	LVSWG And Bus Duct Installation	18-Feb-21				
2	031-SUB-LVBD-1A	AGROUD MODULE 2 SUB BUILDING					
	031-SUB-LVBD-1B						
<b>NOTE:</b> Inspection result : A - Approved B - Reject C - Approved with Comment							
<i>As per attached</i>							
<b>NAME :</b> PETROJET		<b>NAME :</b> ENPPI		<b>NAME :</b> PMC			
<b>SIGNATURE</b>		<b>SIGNATURE</b>		<b>SIGNATURE</b>			
<b>DATE</b>							

ITR-QC-0001




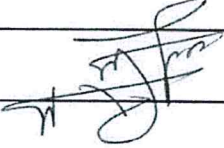
			
<b>ENPPI</b> PETROJET		<b>EGPC</b> CRUDE OIL TANK FARM	

## BUS DUCT INSTALLATION

INSPECTION REPORT NUMBER				INSPECTION DATE & TIME		DOCUMENT No.		DISCIPLINE		ELECTRICAL		SHEET NO	
AREA DESCRIPTION													
Busway type				Rated Voltage									



NO.	INSPECTION	RESULT		
		ACCEPT	REJECT	N/A
1	Check that the min clearances between the Busway sections and the edge of the wall not less than 100 mm	✓		
2	Check that the Min clearance distance between the top of the Busway and ceiling not less than 1000 mm at tap-off	✓		
3	Check that the Min mounting clearances between the two parallel Busway Edge wise / Flat wise not less than ( if applicable)			✓
4	Check that the min distance between each two supports is not less than the recommended value on installation manual.	✓		
5	Check that the min distance between the joint blocks axis and below floor slab for the risers is in accordance to recommended value in installation manual	✓		
6	Check that the min distance between the joint block axis and the corresponding upper ceiling for the risers is in accordance to recommended value in installation manual.	✓		
7	Check that min clearance for the Busway trucking through the opening of the floor or through the wall is not less than 50mm.	✓		
8	Check that there is no any joint block is positioned in the floor slab/wall	✓		
9	Check that Busways components are free from physical damage	✓		
10	Check that the Busways during the installations are not exposed to any bad conditions ( Dust, Vapors or abnormal vibrations )	✓		
11	Verify that the size of the steel threaded drop rod is not less than mentioned value in installation manual	✓		
12	Check that the used supports are suitable to installation type and verify proper fixation of supports	✓		
13	Verify that the used fixing system for risers is suitable to rated currents of the risers as per installation manual recommendations.	✓		
14	Verify that supporting of the Busway is independently from supports for other building system such as (fall ceiling- piping – duct work)	✓		
15	Verify that the vertical busway is protected from moisture or dust from unfinished roof.			

### REMARKS:

NAME :	PETROJET	ENPPI	PMC
SIGNATURE			
DATE			

EL0015



			
INSPECTION AND TEST REPORT FOR		EGPC CRUDE OIL TANK FARM	

## BUS DUCT INSTALLATION

INSPECTION REPORT NUMBER	INSPECTION DATE & TIME	DOCUMENT No.	DISCIPLINE	SHEET NO
		ITR-EL-0015	ELECTRICAL	
AREA DESCRIPTION				
Busway type	Tag No.	Rated Voltage		

NO.	INSPECTION	RESULT
16	Verify that the uncompleted Busway sections to be closed by proper cover (water proof and sealed) to prevent the insertion of any foreign object	✓
17	Verify that expansion section is positioned in accordance to S.L.D.	✓
18	Verify that the arrangement and the type of installed Busway components (tap off- elbow- runs ----etc ) in accordance to S.L.D	✓
19	Verify that the gasket of the junction blocks is in place properly.	✓
20	Verify that contacts of junction blocks are clean of dust, liquid or any	✓
21	Verify that the contacts plates of junction blocks and of trucking of Busway are free from damage* (before fixed the covers)	✓
22	Verify the proper mounting of contact plates of junction blocks and contact plates of trucking of busway.	✓
23	Verify proper vertical and horizontal alignment during the installation of Busway	✓
24	Check the tightening torque of the junction blocks	✓
25	Check the tightening torque of the covers of the junction block after completing all required tests *	✓
26	Verify the tightening torque of bolts not fitted with torque nuts.	✓
27	Check that springs of spring hangers are freely by removed spring nuts after complete installation of risers.	✓
28	Verify phases arrangement of busway with the switchboard and transformers	✓
29	Check the installation of the End Feed or adaption between the Busway and Switchboard or with transformer	✓
30	Verify that the cross section area of adaptation link between busway and switchboard/transformer for non standard solution is according to approved drawings	✓
31	Verify the connections of PE of busway with the earthing of switchboard and/or transformer	✓

### REMARKS:

NAME :	PETROJET	ENPPI	PMC
SIGNATURE			
DATE			

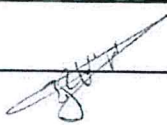
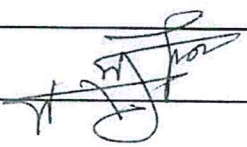
ITR-EL-0015





NO.	INSPECTION	RESULT	N/A
1	Verify that equipment name plates are according to the corresponding drawing	—	
2	Inspect physical and mechanical condition of the equipment and all components for clear damage.	—	
3	Verify appropriate anchorage, required area clearances, physical damage, and correct alignment and cleanliness.	—	
4	Inspect all doors, panels, and sections for paint, dents, scratches, fit, and missing hardware.	—	
5	Verify that the barriers and covers are installed correctly.	—	
6	Verify that filters are in place and all ventilation openings are clear from any kind of obstacles.	—	
7	Verify that main bus bar is connected between the cells.	—	
8	Verify that the earth bar is connected between the cells and connected to the earth.	—	
9	Verify the tightness of accessible bolted electrical connections using the calibrated torque-wrench method	—	
10	After tightening each electrical connection to the appropriate torque, apply some Varnish between the nut and the screw (or else, between the screw's head and	—	
11	Confirm that lubricants have been correctly applied at the recommended locations.	—	
12	Inspect all mechanical indicating devices for correct operation.	—	
13	Verify that draw out disconnecting contacts and interlocks function correctly.	—	
14	Verify that fuse and/or circuit breaker size and type correspond to drawings.	—	
15	Verify that current and potential transformer ratios correspond to drawings.	—	
16	Verify that all the interconnection control wires between the cells have been made correctly reference to the control drawings	—	
17	Verify that customer connections to remote power, operators, interlocks, and indicators have been made.	—	

**REMARKS:**



**REFERENCE DOCUMENTS:**

NAME :	PETROJET	ENPPI	PMC
SIGNATURE			
DATE			

## 12.08- FAT Reports & Certificates

System ID	030-EI-005
System Description	Substation 400V Low Voltage Motor Control Center System
<div><div><div><div>Enppi</div><div>پتروپي</div></div></div><div><div>Project: 01251-100</div><div>CRUDE OIL TANK FARM PROJECT (AGROOD AREA)</div><div><div><div>پتروپي</div><div>پتروپي</div></div></div></div></div>	

## 12.09- SAT Reports & Certificates

System Description	Substation 400V Low Voltage Motor Control Center System
System ID	030-EL-005
<div><p>Enppi</p><p>پتروپي</p><p>PETROJET</p></div> <div><p>Project: 01251-100</p><p>CRUDE OIL TANK FARM PROJECT (AGROOD AREA)</p></div>	



Date : 30 / 11 / 2020	Customer : Enppi/PPC
Site Location: 6- Agrood Area 031-SUB-LVSWG-1	Project : EGPC Crude oil Tank Farm
Order Number : 010.004.001	Equipment Tag: Blokset
Rated Voltage: 690V	Service voltage : 400V

Visual and Mechanical inspection		
DESCRIPTION	STATUS	NOTE
1	OK	3 Tapes
Verify that equipment name plates are according to the corresponding drawings.		
2	OK	
Inspect physical and mechanical condition of the equipment and all components for clear damage.		
3	OK	
Verify appropriate anchorage, required area clearances, physical damage, and correct alignment and cleanliness.		
4	OK	Touch up Point
Inspect all doors, panels, and sections for paint, dents, scratches, fit, and missing hardware.		
5	OK	
Verify that the barriers and covers are installed correctly.		
6	OK	
Verify that filters are in place and all ventilation openings are clear from any kind of obstacles.		
7	OK	
Verify that main bus bar is connected between the cells.		
8	OK	
Verify that the earth bar is connected between the cells and connected to the earth.		
9	OK	
Verify the tightness of accessible bolted electrical connections using the calibrated torque-wrench method		
10	OK	
Confirm that lubricants have been correctly applied at the recommended locations.		
11	OK	
Inspect all mechanical indicating devices for correct operation.		
12	OK	
Verify that draw out disconnecting contacts and interlocks function correctly.		
13	OK	
Verify that fuse and/or circuit breaker size and type correspond to drawings.		
14	OK	
Verify that current and potential transformer ratios correspond to drawings.		
15	OK	
Verify that all the interconnection control wires between the cells have been made correctly reference to the control drawings		
16	OK	
Verify that customer connections to remote power, operators, interlocks, and indicators have been made.		

Comments: *Abd Elaziz*

PPC rep.: Name- *Shab Abd*

Enppi rep.: Name- *Shab Abd*

Schneider rep.: Name- Amr Mohamed/Ahmed Osam


Signature- *[Signature]*

Signature- *[Signature]*

Signature- *[Signature]*

LV\_CK\_1 Visual & Mechanical inspection for LV switchgear

Page 1 of 1

Index A	Functional operational tests for LV Switchgear.	

Date : 1/12/2020	Customer : Enppi/PPC
Site Location: 6- Agrood Area 031-SUB-LVSWG-1	Project : EGPC Crude oil Tank Farm
Order Number : 010.004.001	Equipment Tag: Blokset
Rated Voltage: 690V	Service voltage : 400V

### Functional operational tests for LV Switchgear.

Visual and Mechanical inspection		
DESCRIPTION	STATUS	NOTE
1 Insure that the auxiliary supply required for the operation is connected.	ok	
2 Check the Electrical closing / opening of the circuit breaker in draw in position	ok	
3 Check the Electrical closing / opening of the circuit breaker in draw Out Position	ok	
4 Check the Electrical closing / opening of the circuit breaker in test position (If any)	ok	
5 Check the electrical indicators which are present in the LV compartment doors and its compatibility with the operation mode statues	ok	
6 Check the circuit breaker for TVSS in the close position before Energize the incoming circuit breaker.	N/A	
7 Check the mechanical indicators which present and its compatibility with the operation mode statues	ok	
8 Check the mechanical interlocking system by keys as per drawings "If any"	N/A	Stuck
9 Check all operation modes of the switchgear (i.e. local, auto, remote.....etc) as per the drawings. Simulate all external signals to the switchgear.	ok	

Comments-----	PPC rep.: Name: <u>Abd Elhady</u>	Enppi rep.: Name: <u>Osama</u>	Schneider rep.: Name: <u>Ahmed Osam</u>
	Signature: <u>[Signature]</u>	Signature: <u>[Signature]</u>	Signature: <u>[Signature]</u>



Date : 29 / 11 / 2020	Customer : Enppi/PPC
Site Location: Agrod Area 031-SUB-LVSWG-1	Project : ECP-Crud Oil Tank Farm
Order Number : 010.004.001	Equipment Tag: Blokset
Rated Voltage: 690 V	Service voltage : 400 V

### Insulation-resistance tests

Test Device:	S.N: SRV145976MFH
Model: C.A6505	

Test voltage	Applied DC test voltage
	1000V

### For bus section 1:

Insulation resistance (Megohms)			
Phase to phase	A-B: 46.7 GΩ	B-C: 31.9 GΩ	C-A: 17.1 GΩ
Phase to ground	A-GND: 8.24 GΩ	B-GND: 40.7 GΩ	C-GND: 7.5 GΩ
Phase to Neutral	A-N: 13.7 GΩ	B-N: 43.5 GΩ	C-N: 16.11 GΩ
Neutral to ground	11.63 GΩ		

### For bus section 2 (if any):

Insulation resistance (Megohms)			
Phase to phase	A-B: 33.5 GΩ	B-C: 47.3 GΩ	C-A: 30.8 GΩ
Phase to ground	A-GND: 6.2 GΩ	B-GND: 29.6 GΩ	C-GND: 26.4 GΩ
Phase to Neutral	A-N: 11 GΩ	B-N: 34.6 GΩ	C-N: 27.9 GΩ
Neutral to ground	6.2 GΩ		

### Notes:-

- If the resistance is lower than the standard values, visually inspect the equipment for cleanliness and other potential causes.
- If the visual inspection does not reveal the causes, recommend for the contractor to dry the equipment for a minimum of 4 hours using heat and fans. Then re-measure.
- The insulation resistance test must be done before and after the di-electric test (di-electric test is only made during the testing and commissioning of a switchgear for the first time).

PPC rep.: Name- Mohamed Abdelkader  
 Enppi rep.: Name- Shady Aoud  
 Schneider rep.: Name- Amr Mohamed-Ahmed Osam

Signature \_\_\_\_\_  
 Signature \_\_\_\_\_  
 Signature \_\_\_\_\_



Date : 1-12-2020	Order Number : 010.004.001	Equip. Tag : Blokset	Site Location : 6-Agrood Area 031-SUB-LVSWG-1
Customer : Enppi/PPC	Project : EGPC Crude Oil Tank Farm	Rated Voltage : 690 V	Service voltage : 400 V

### Protection relays

Note: This test must be made individually for each protection relay by using a secondary injection of the current and voltage

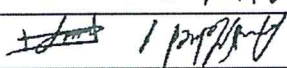
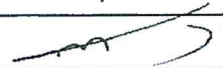
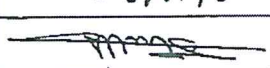
Cell number / type	Incoming A
Protection relay type	Easergy-P3T32
Protection relay serial number	EB202620110

### GENERAL INSPECTION

DESCRIPTION	STATUS	NOTE
Preliminary general examination, prior to energizing	ok	
Energizing	ok	
Parameter and protection settings	ok	
Logic input connection	ok	
Logic output connection	ok	
Validation of the complete protection chain	ok	

General	Description	Setting
Characteristics	Network frequency	50 HZ
	CT rating (Primary)	2000
	CT rating (Secondary): 1A or 5A	5
	Rated current (In)	2000
	Base current (Ib)	2000
	Residual current	
	Rated residual current (In0)	

General	Description	Setting
Characteristics	Network frequency	50 HZ
	Number of VTs	3
	Rated primary voltage (Unp)	400
	Rated secondary voltage (Uns)	110
	Residual voltage	

COMPANY	NAME	SIGNATURE	DATE
SCHNEIDER	AMR MOHAMED/AHMED OSAM		21/12/2020
PPC	Mohamed Abd El Wahed		21/12/2020
Enppi	Shawky Aoud		21/12/2020



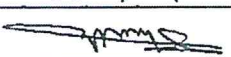
Date : 1-12-2020	Site Location : 6-Agrood Area 031-SUB-LVSWG-1
Order Number : 010.004.001	Equip. Tag : Blokset
Customer : Enpp/PPC	Rated Voltage : 690 V
Project : EGPC Crude Oil Tank Farm	Service voltage : 400 V

Phase current and phase voltage input connection	Secondary injection of CT rated current, i.e. 1 A or 5 A	CT rated primary current	II = 2000 A I2 = 2000 A I3 = 2000 A
	Secondary injection of VT rated phase-to-neutral voltage Uns / $\sqrt{3}$	VT rated primary phase-to-neutral voltage Unp / $\sqrt{3}$	V1 = 400 V V2 = 400 V V3 = 400 V


### Protection setting

Protection relay serial number.. EB202620110

Applied for Easergy-P3T32									
Function		Curve		Setting and Testing Points					
		curve	I adjusted	I injected	T adjusted	T measured	± 5% error	Acceptance	
Over current	50 / 51 - G1-I>	DIT	5 A	5.2 A	300MS	298MS			
	50 / 51 - G1-I>	DIT	10 A	10.2 A	100MS	60MS			
	87 / Diff								
Earth fault	50G/51G	DIT	0.5 A	0.52 A	1 S	980MS			
	50N/51N - G1>	DIT	1 A	1.1 A	1 S	995MS			
	50N/51N-I>								
Directional Earth fault	67N - G1> - REV								
Under Voltage	27	DIT	85%	340	3 S	3.01 S			
Over Voltage	59	DIT	97%	388	3 S	3 S			

COMPANY	SCHNEIDER	ppc	Enppi
NAME	AMR MOHAMED/AHMED OSAM	Mohammed Ahmed	Enppi Awd
SIGNATURE			
DATE	21/12/2020	21/12/2020	21/12/2020



	<b>Operation and Test of Drawer Outgoing Feeder</b>	<b>Ref: LV-TS-4</b>

<b>Date : 1-12-2020</b>	
<b>Site Location : 6-Agrod Area 031-SUB-LVSWG-1</b>	<b>Order Number : 010.004.001</b>
<b>Customer : Enppi/PPC</b>	<b>Project : EGPC Crude Oil Tank Farm</b>
<b>Rated Voltage : 690 V</b>	<b>Service Voltage : 400 V</b>

### Functional operational tests for LV Outgoing

Mechanical and Electrical inspection		
DESCRIPTION	STATUS	NOTE
1	ok	Check the Mechanical Operation for Drawer (Connect, Test, Disconnect) and Interlock.
1	ok	Insure that the auxiliary supply required for the operation is connected.
2	ok	Check the Electrical closing/opening and Interlock of the Outgoing (Local & Remote) from HMI and T.B
3	ok	Check the electrical indicators which are present with Operation (Close + Open)
4	ok	Check the Electrical Emergency Stop of the Outgoing during External Field from T.B
5	ok	Check the status for Outgoing from T.B

### Test-T Trip Units:

Outgoing Number: A2-Q5	Outgoing Rate: 30 KW	Type of Topical: Full Load Current: 5 A
C.T Ratio: N-A	Trip Class:10	

Function	Enable	I Adjusted	I injected	T adjusted	T measured
Thermal Over load F49	DT	100%	5.3A	5 Sec	4.8 Sec
Earth Fault F50G	DT	1A	1.2 A	100ms	115 ms
Imbalance F46	DT	-	-	-	-
Over Current F51	N/A	-	-	-	-
Long Start FSIR	DT	100%	5.2 A	3 Sec	3.06 Sec
Jam FSIS	DT	200%	10.5A	5 Sec	5.3 Sec

Not's: Before the Insulation Resistance Test Must be remove the cable for Fuse Monitor

Test Info	Name	Company	Date	Signature
Comm. supervisor	Amr Mohamed	Schneider	21/12/2020	Amr Mohamed
Tested By	Ahmed Osm	Schneider	21/12/2020	Ahmed Osm
Witness	Shabir A. d	Enppi	21/12/2020	Shabir A. d
Witness	Mohamed El N. H	PPC	21/12/2020	Mohamed El N. H
Witness				

Schneider Electric	Operation and Test of Drawer Outgoing Feeder	Ref: LV-TS-4

Date : 1-12-2020	Site Location : 6-Agrud Area 031-SUB-LVSWG-1
Order Number : 010.004.001	Switchgear Type, Tag : Blockset
Customer : Enpp/PPC	Rated Voltage : 690 V
Project : EGPC Crude Oil Tank Farm	Service voltage : 400 V

### Functional operational tests for LV Outgoing

Mechanical and Electrical inspection		
DESCRIPTION	STATUS	NOTE
1	ok	Check the Mechanical Operation for Drawer (Connect, Test, Disconnect) and Interlock.
1	ok	Insure that the auxiliary supply required for the operation is connected.
2	ok	Check the Electrical closing/opening and Interlock of the Outgoing (Local & Remote) from HMI and T.B
3	ok	Check the electrical indicators which are present with Operation (Close + Open)
4	ok	Check the Electrical Emergency Stop of the Outgoing during External Field from T.B
5	ok	Check the status for Outgoing from T.B

### TSys-T Trip Units:

Outgoing Number: B3-Q4	Outgoing Rate: 30 KW	Type of Topical:
C.T Ratio: N-A	Trip Class:10	Full Load Current: 5 A

Function	Enable	I Adjusted	I Injected	T adjusted	T measured
Thermal Over load	F49	100%	5.3A	5 Sec	4.6 Sec
Earth Fault	F50C	1A	1.2 A	100ms	111 ms
Imbalance	F46	-	-	-	-
Over Current	F51	N/A	-	-	-
Long Start	F51R	100%	5.2 A	3 Sec	3.10 Sec
Jam	F51S	DT	200%	10.5A	5.5 Sec

Not's: Before the Insulation Resistance Test Must be remove the cable for Fuse Monitor

Test Info	Name	Company	Date	Signature
Comm. supervisor	Aimr Mohamed	Schneider	2-12-2020	Signature
Tested By	Ahmed Osam	Schneider	2-12-2020	Signature
Witness	Shabir And	ENP	2-12-2020	Signature
Witness	Mohamed El-Mah	PPC	2-12-2020	Signature
Witness				



Date :27/6/2021	Site Location : AGR00D
Order Number : S20008.15	Equip. Tag : LV
Customer :Enppi	Rated Voltage : 400V
Project : EGPC CRUDE OIL TANK FARM PROJECT	Service voltage : 400V

**Functional operational tests for LV Switchgear.**

Visual and Mechanical inspection		
DESCRIPTION	STATUS	NOTE
1	Ok	Insure that the auxiliary supply required for the operation is connected.
2	Ok	Check the Electrical closing / opening of the circuit breaker in draw in position
3	Ok	Check the Electrical closing / opening of the circuit breaker in draw out position
4	Ok	Check the Electrical closing / opening of the circuit breaker in test position (If any)
5	Ok	Check the electrical indicators which are present in the LV compartment doors and its compatibility with the operation mode statuses
6	N/A	Check the circuit breaker for TVSS in the close position before energize the incoming circuit breaker.
7	Ok	Check the mechanical indicators which present and its compatibility with the operation mode statuses
8	Ok	Check the mechanical interlocking system by keys as per drawings "if any"
9	Ok	Check all operation modes of the switchgear (i.e. local, auto, remote.....etc) as per the drawings. Simulate all external signals to the switchgear.

Comments-----

Enppi rep.: Name-Eng. Ahmed Nadeem      Signature-----

PPC rep.: Name-----Eng: Mohamed Ibrahim      Signature-----

Schneider rep.: Name-----Mahmoud abd elnou      Signature-----

Date : 27/6/2021	Site Location : AGROOD
Order Number : S20008.15	Equip. Tag : LV
Customer : Enppi	Rated Voltage : 400V
Project : EGPC CRUDE OIL TANK FARM PROJECT	Service voltage : 400MV

Visual and Mechanical inspection	
DESCRIPTION	STATUS
1	Verify that equipment name plates are according to the corresponding drawings.
2	Inspect physical and mechanical condition of the equipment and all components for clear damage.
3	Verify appropriate anchorage, required area clearances, physical damage, and correct alignment and cleanliness.
4	Inspect all doors, panels, and sections for paint, dents, scratches, fit, and missing hardware.
5	Verify that the barriers and covers are installed correctly.
6	Verify that filters are in place and all ventilation openings are clear from any kind of obstacles.
7	Verify that main bus bar is connected between the cells.
8	Verify that the earth bar is connected between the cells and connected to the earth.
9	Verify the tightness of accessible bolted electrical connections using the calibrated torque-wrench method
10	Confirm that lubricants have been correctly applied at the recommended locations.
11	Inspect all mechanical indicating devices for correct operation.
12	Verify that draw out disconnecting contacts and interlocks function correctly.
13	Verify that fuse and/or circuit breaker size and type correspond to drawings.
14	Verify that current and potential transformer ratios correspond to drawings.
15	Verify that all the interconnection control wires between the cells have been made correctly reference to the control drawings
16	Verify that customer connections to remote power, operators, interlocks, and indicators have been made.

Comments-----

Enppi rep.: Name-Eng. Ahmed Nadeem ----- Signature-----

PPC rep.: Name-----Eng: Mohamed Ibrahim -- Signature-----

Schneider rep.: Name—Mahmoud abd elnou ----- Signature-----



Date :28/6/2021	Order Number : S20008.15	Equip. Tag : L V	Rated Voltage : 400V	Service voltage : 400V
Customer :Enppi				
Project : EGPC CRUDE OIL TANK FARM PROJECT				

### Protection relays: Esargy P3

- This test must be made individually for each protection relay by using a secondary injection of the current and voltage.
- Before work starts a backup file for the configuration must be taken from relevant devices; doesn't apply on new devices.
- In case of customized tripping curves (customer scope) is selected for 50/51 and 50N/51N the tripping curve must be manually selected from the device after sending the configuration file.

Cell number / type	INC 1
Protection relay type	Esargy P3
Protection relay serial number	EB202220058

### GENERAL INSPECTION.

DESCRIPTION	STATUS	NOTE
Preliminary general examination, prior to energizing	ok	
Energizing	OK	
Parameter and protection settings	OK	
Logic input connection	OK	
Logic output connection	OK	
Validation of the complete protection chain	N/A	
Analog output connection to the module and testing	OK	
Temperature sensor input connection and testing	OK	

General	Description	Setting
Characteristics	Network frequency	50HZ
	CT rating (Primary)	2000A
	CT rating (Secondary): 1A or 5A	5A
	Rated current (In)	2000A
	Base current (Ib)	2000A
	Residual current	2000A
	Rated residual current (In0)	2000A

Checking of Esargy P3 phase voltage and current inputs			
Type of check	Test performed	Result	Display
Phase current and phase voltage input connection	Secondary injection of CT rated current, i.e. 1 A or 5 A	CT rated primary current	I1 = 2000A I2 = 2000A I3 = 2000A
	Secondary injection of VT rated phase-to-neutral voltage Uns / $\sqrt{3}$	VT rated primary phase-to-neutral voltage Unp / $\sqrt{3}$	V1 = 400 V V2 = 400 V

Comments-----

Enppi rep.: Name-Eng. Ahmed Nadeem  
 PPC rep.: Name-----Eng: Mohamed Ibrahim  
 Schneider rep.: Name-----Mahmoud abd elnour



Schneider Electric	Protection Relay Series Esargy P3 Test Sheet	INC 1

Date :28/6/2021		Site Location : AGROOD	
Order Number : S20008.15		Equip. Tag : L V	
Customer : Enppi		Rated Voltage : 400V	
Project : EGPC CRUDE OIL TANK FARM PROJECT		Service voltage : 400V	
		V3 = 400 V	

# Protection setting

Applied for Esargy P3									
Setting and Testing Points									
Function	Curve	curve	I adjusted	I injected	T adjusted	T measured	error ± 5%	reception	cc
Over current	50/S1-1/A	DT	1 In	7.5A	1Sec	1.020Sec			
	50/S1-1/B								
	50/S1-2/A	DT	2 In	17A	100mS	118mS			
	50/S1-2/B								
Earth fault	50N/S1N-1/A	DT	0.2 InO	1.5A	1Sec	1.017Sec			
	50N/S1N-1/B								
	50N/S1N-2/A	DT	0.4 InO	3A	100mS	119mS			
	50N/S1N-2/B								

Comments-----

Enppi rep.: Name-Eng. Ahmed Nadeem  
 PPC rep.: Name-----Eng: Mohamed Ibrahim  
 Schneider rep.: Name-----Mahmoud abd elnou

Signature-----  
 Signature-----  
 Signature-----

Date :28/6/2021	Site Location : AGROOD	Equip. Tag : L V	Rated Voltage : 400V	Service voltage : 400V
Order Number : S20008.15		Customer : Enppi		
Project : EGPC CRUDE OIL TANK FARM PROJECT				

**Protection relays: Esargy P3**

- This test must be made individually for each protection relay by using a secondary injection of the current and voltage.
- Before work starts a backup file for the configuration must be taken from relevant devices; doesn't apply on new devices.
- In case of customized tripping curves (customer scope) is selected for 50/51 and 50N/51N the tripping curve must be manually selected from the device after sending the configuration file.

Cell number / type	INC 2	Protection relay type	Esargy P3
Protection relay serial number		EB202220058	

**GENERAL INSPECTION.**

DESCRIPTION		
PRELIMINARY general examination, prior to energizing	ok	NOTE
Energizing	ok	
Parameter and protection settings	ok	
Logic input connection	ok	
Logic output connection	ok	
Validation of the complete protection chain	N/A	
Analog output connection to the module and testing	ok	
Temperature sensor input connection and testing	ok	

General	Description	Setting
Characteristics	Network frequency	50HZ
	CT rating (Primary)	2000A
	CT rating (Secondary): 1A or 5A	5A
	Rated current (In)	2000A
	Base current (Ib)	2000A
	Residual current	2000A
	Rated residual current (In0)	2000A

Checking of Esargy P3 phase voltage and current inputs			
Type of check	Test performed	Result	Display
Phase current and phase voltage input connection	Secondary injection of CT rated current, i.e. 1 A or 5 A	CT rated primary current	I1 = 2000A I2 = 2000A I3 = 2000A
	Secondary injection of VT rated phase-to-neutral voltage Uns / $\sqrt{3}$	VT rated primary phase-to-neutral voltage Unp / $\sqrt{3}$	V1 = 400 V V2 = 400 V

Comments-----

Enppi rep.: Name-Eng. Ahmed Nadeem      Signature-----  
 PPC rep.: Name-----Eng: Mohamed Ibrahim      Signature-----  
 Schneider rep.: Name-----Mahmoud abd elnour      Signature-----



Date :28/6/2021	Order Number : S20008.15	Equip. Tag : L V	Site Location : AGROOD
Customer :Enppi	Rated Voltage : 400V	Service voltage : 400V	
Project : EGPC CRUDE OIL TANK FARM PROJECT			
			V3 = 400 V

# Protection setting

Applied for Esargy P3									
Function		Curve		curve	I adjusted	I injected	T adjusted	I measured	error ±5%
Setting and Testing Points									
Over current	50 / 51 - 1 / A	DT	1 In	7.5A	1Sec	1.022Sec			
	50 / 51 - 1 / B								
	50 / 51 - 2 / A	DT	2 In	17A	100mS	108mS			
	50 / 51 - 2 / B								
Earth fault	50N / 51N - 1 / A	DT	0.2 InO	1.5A	1Sec	1.020Sec			
	50N / 51N - 1 / B								
	50N / 51N - 2 / A	DT	0.4 InO	3A	100mS	108mS			
	50N / 51N - 2 / B								

Enppi

rep.: Name-Eng . Ahmed Nadeem

Signature

PPC

rep.: Name-----Eng: Mohamed Ibrahim

Signature

Schneider rep.: Name-----Mahmoud abd elnour

Signature

Comments-----

Page 2 of 2

Schneider Electric	Protection Relay Series Esargy P3 Test Sheet		B.C

Date : 28/6/2021	Order Number : S20008.15	Equip. Tag : L V	Site Location : AGROOD
Customer : Enppi		Rated Voltage : 400V	Service voltage : 400V
Project : EGPC CRUDE OIL TANK FARM PROJECT			

### Protection relays: Esargy P3

- This test must be made individually for each protection relay by using a secondary injection of the current and voltage.
- Before work starts a backup file for the configuration must be taken from relevant devices; doesn't apply on new devices.
- In case of customized tripping curves (customer scope) is selected for 50/51 and 50N/51N the tripping curve must be manually selected from the device after sending the configuration file.

Cell number / type	B.C
Protection relay type	Esargy P3
Protection relay serial number	EB202220058

GENERAL INSPECTION.		
DESCRIPTION	STATUS	NOTE
Preliminary general examination, prior to energizing	ok	
Energizing	Ok	
Parameter and protection settings	Ok	
Logic input connection	Ok	
Logic output connection	Ok	
Validation of the complete protection chain	N/A	
Analog output connection to the module and testing	Ok	
Temperature sensor input connection and testing	Ok	

General	Description	Setting
Characteristics	Network frequency	50HZ
	CT rating (Primary)	2000A
	CT rating (Secondary): 1A or 5A	5A
	Rated current (In)	2000A
	Base current (Ib)	2000A
	Residual current	2000A
	Rated residual current (In0)	2000A

Checking of Esargy P3 phase voltage and current inputs			
Type of check	Test performed	Result	Display
Phase current and phase voltage input connection	Secondary injection of CT rated current, i.e. 1 A or 5 A	CT rated primary current	I1 = 2000A I2 = 2000A I3 = 2000A
	Secondary injection of VT rated phase-to-neutral voltage Uns / $\sqrt{3}$	VT rated primary phase-to-neutral voltage Unp / $\sqrt{3}$	V1 = 400 V V2 = 400 V

Comments-----

Enppi rep.: Name-Eng. Ahmed Nadeem  
 PPC rep.: Name-----Eng: Mohamed Ibrahim  
 Schneider rep.: Name-----Mahmoud abd elnour

Signature-----  
 Signature-----  
 Signature-----



Schneider Electric	Protection Relay Series Esargy P3 Test Sheet	B.C

Date : 28/6/2021	Site Location : AGROOD
Order Number : S20008.15	Equip. Tag : L V
Customer : Enppi	Rated Voltage : 400V
Project : EGPC CRUDE OIL TANK FARM PROJECT	Service voltage : 400V

V3 = 400 V
------------

### Protection setting

Applied for Esargy P3									
Setting and Testing Points						Curve		Function	
curve	I adjusted	I injected	I adjusted	I measured	error ± 5%	acceptance			
Over current	50/51-1/A	DT	1 In	7.5A	1Sec	1.018Sec			
	50/51-1/B								
	50/51-2/A	DT	2 In	17A	100mS	120mS			
	50/51-2/B								
Earth fault	50N/51N-1/A	DT	0.2 InO	1.5A	1Sec	1.015Sec			
	50N/51N-1/B								
	50N/51N-2/A	DT	0.4 InO	3A	100mS	118mS			
	50N/51N-2/B								

Comments-----

Enppi rep.: Name-Eng. Ahmed Nadeem  
 PPC rep.: Name-----Eng: Mohamed Ibrahim  
 Schneider rep.: Name-----Mahmoud abd elnour

Signature-----  
 Signature-----  
 Signature-----

Date : 27/6/2021	Site Location : AGR00D ٤٤١
Order Number : S20008.15	Equip. Tag : LV
Customer : Enppi	Rated Voltage : 400V
Project : EGPC CRUDE OIL TANK FARM PROJECT	Service voltage : 400V

### Insulation-resistance tests

Test Device: CHAUVIN	S.N: SRV147858PGH
Model: C.A 6505	

Test voltage	Applied DC test voltage
	1 KVDC

For bus section 1:

Insulation resistance (Megohms)			
Phase to phase	A-B: 3.46G ohm	B-C: 3.54 G ohm	C-A: 3.39G ohm
Phase to ground	A-GND: 3.213G ohm	B-GND: 3.314G ohm	C-GND: 4.414G ohm
Phase to Neutral	A-N: 5.46G ohm	B-N: 5.22G ohm	C-N: 5.1G ohm
Neutral to ground	3.313G ohm		

For bus section 2 (if any):

Insulation resistance (Megohms)			
Phase to phase	A-B: 4.16G ohm	B-C: 3.145G ohm	C-A: 4.29G ohm
Phase to ground	A-GND: 3.323G ohm	B-GND: 3.13G ohm	C-GND: 4.1G ohm
Phase to Neutral	A-N: 5.43G ohm	B-N: 5.24G ohm	C-N: 4.12G ohm
Neutral to ground	3.25G ohm		

Notes: -

- If the resistance is lower than the standard values, visually inspect the equipment for cleanliness and other potential causes.
- If the visual inspection does not reveal the causes, recommend for the contractor to dry the equipment for a minimum of 4 hours using heat and fans. Then re-measure.
- The insulation resistance test must be done before and after the di-electric test (di-electric test is only made during the testing and commissioning of a switchgear for the first time).

Comments:-----

Enppi rep.: Name-Eng. Ahmed Nadeem	Signature-----
PPC rep.: Name-----Eng: Mohamed Ibrahim	Signature-----
Schneider rep.: Name-----Mahmoud abd elnou	Signature-----



Schneider Electric	Operation and Test of Drawer Outgoing Feeder	Ref: LV-B3-Q1

Date : 27 / 6 /2021	Customer : ENPPI
Site Location: 6- Agrood Area 031-SUB-LVSWG-1	Project : EGPC Crude oil Tank Farm
Order Number : S2000	Equipment Tag: Blokset
Rated Voltage: 400V	Service Voltage : 400V

### Functional operational tests for LV Outgoing

Mechanical and Electrical inspection		
DESCRIPTION	STATUS	NOTE
1	ok	Check the Mechanical Operation for Drawer (Connect, Test, Disconnect) and Interlock.
1	ok	Insure that the auxiliary supply required for the operation is connected.
2	ok	Check the Electrical closing/opening and Interlock of the Outgoing (Local & Remote) from HMI and T.B
3	Ok	Check the electrical indicators which are present with Operation (Close + Open)
4	ok	Check the Electrical Emergency Stop of the Outgoing during External Field from T.B
5	ok	Check the status for Outgoing from T.B

### Testys-T Trip Units:

Outgoing Number: B3-Q1	Outgoing Rate: 4.4KW	Type of Topical: A1.12
Rating Current : 30A	Trip Class:10	Full Load Current:5A

Function	Enable	I Adjusted	I injected	T adjusted	T measured
Thermal Over load	DT	100%	5.3A	5 Sec	5.018 SEC
Earth Fault	DT	1A	1.2A	500ms	515 MS
Imbalance	DT	-	-	-	-
R46	DT	-	-	-	-
Over Current	N/A	-	-	-	-
F51	N/A	-	-	-	-
Long Start	DT	100%	5.2A	5 Sec	5.012 SEC
F51R	DT	200%	10.5A	5 Sec	5.013 SEC
Jam	DT	200%	10.5A	5 Sec	5.013 SEC

Not's: Before the Insulation Resistance Test Must be remove the cable for Fuse Monitor

Test Info	Name	Company	Date	Signature
Comm. supervisor	Mahmoud abd elnour	Schneider	30/6/2021	
Customer:	Eng. Ahmed nadeem	ENPPI	30/6/2021	
PPC:	Eng. mohamed ibrahem	MR.C	30/6/2021	

Schneider Electric	Operation and Test of Drawer Outgoing Feeder	Ref: LV-B3-Q2

Date : 27 / 6 / 2021	Customer : ENPPI
Site Location: 6- Agrod Area 031-SUB-LVSWG-1	Project: EGPC Crude oil Tank Farm
Order Number : S2000	Equipment Tag: Blokset
Rated Voltage: 400V	Service voltage : 400V

### Functional operational tests for LV Outgoing

Mechanical and Electrical Inspection		
DESCRIPTION	STATUS	NOTE
1	Check the Mechanical Operation for Drawer (Connect, Test, Disconnect) and Interlock.	ok
1	Insure that the auxiliary supply required for the operation is connected.	ok
2	Check the Electrical closing/opening and Interlock of the Outgoing (Local & Remote) from HMI and T.B	ok
3	Check the electrical indicators which are present with Operation (Close + Open)	Ok
4	Check the Electrical Emergency Stop of the Outgoing during External Field from T.B	ok
5	Check the status for Outgoing from T.B	ok

### Tests-T Trip Units:


Outgoing Number: B3-Q2	Outgoing Rate: 5.5KW	Type of Topical: A1.12
Rating Current : 40A	Trip Class:10	Full Load Current:5A

Function	Enable	I Adjusted	I injected	T adjusted	T measured
Thermal Over load F49	DT	100%	5.3A	5 Sec	5.012SEC
Earth Fault F50G	DT	1A	1.2A	500ms	511 MS
Imbalance F46	DT	-	-	-	-
Over Current F51	N/A	-	-	-	-
Long Start F51R	DT	100%	5.2A	5 Sec	5.018 SEC
Jam F51S	DT	200%	10.5A	5 Sec	5.017 SEC

Not's: Before the Insulation Resistance Test Must be remove the cable for Fuse Monitor

Test Info	Name	Company	Date	Signature
Comm. supervisor	Mahmoud abd elnour	Schneider	30/6/2021	
Customer:	Eng.Ahmed nadeem	ENPPI	30/6/2021	
PRG:	Eng.mohamed ibrahem	P.P.C	30/6/2021	



	Operation and Test of	Ref: LV-B3-Q3
	Drawer Outgoing Feeder	

Date : 27 / 6 / 2021	Customer : ENPPI
Site Location: 6- Agrod Area 031-SUB-LVSWG-1	Project : EGPC Crude oil Tank Farm
Order Number : S2000	Equipment Tag: Blockset
Rated Voltage: 400V	Service voltage : 400V

### Functional operational tests for LV Outgoing

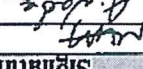
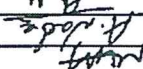
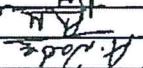
Mechanical and Electrical inspection		
	DESCRIPTION	STATUS
1	Check the Mechanical Operation for Drawer (Connect, Test, Disconnect) and Interlock.	ok
1	Insure that the auxiliary supply required for the operation is connected.	ok
2	Check the Electrical closing/opening and Interlock of the Outgoing (Local & Remote) from HMI and T.B	ok
3	Check the electrical indicators which are present with Operation (Close + Open)	Ok
4	Check the Electrical Emergency Stop of the Outgoing during External Field from T.B	ok
5	Check the status for Outgoing from T.B	ok


### Tests-T Trip Units:

Outgoing Number: B3-Q3	Outgoing Rate: 5.5KW	Type of Topical: A1.12
Rating Current : 40A	Trip Class:10	Full Load Current:5A

Function	Enable	I Adjusted	I injected	T adjusted	T measured
Thermal Over load	DT	100%	5.3A	5 Sec	5.014 SEC
Earth Fault	DT	1A	1.2A	500ms	511MS
Imbalance	DT	-	-	-	-
F46	DT	-	-	-	-
Over Current	N/A	-	-	-	-
F51	DT	100%	5.2A	5 Sec	5.019 SEC
Long Start	DT	200%	10.5A	5 Sec	5.018 SEC
Jam	DT	200%	10.5A	5 Sec	5.018 SEC

Not's: Before the Insulation Resistance Test Must be remove the cable for Fuse Monitor

Test Info	Name	Company	Date	Signature
Comm. supervisor	Mahmoud abd elnour	Schneider	30/6/2021	
Customer:	Eng. Ahmed nadeem	ENPPI	30/6/2021	
PPC:	Eng. Mohamed Ibrahim	PPC	30/6/2021	

	Operation and Test of	Ref: LV-B3-Q4
	Drawer Outgoing Feeder	

Date : 27 / 6 /2021	Customer : ENPI
Site Location: 6- Agrod Area 031-SUB-LVSWG-1	Project : EGPC Crude oil Tank Farm
Order Number : S2000	Equipment Tag: Blokset
Rated Voltage: 400V	Service voltage : 400V

### Functional operational tests for LV Outgoing

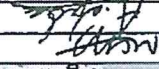
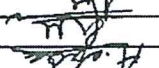
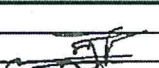
Mechanical and Electrical inspection		
DESCRIPTION	STATUS	NOTE
1	ok	Check the Mechanical Operation for Drawer (Connect, Test, Disconnect) and Interlock.
1	ok	Insure that the auxiliary supply required for the operation is connected.
2	ok	Check the Electrical closing/opening and Interlock of the Outgoing (Local & Remote) from HMI and T.B
3	Ok	Check the electrical indicators which are present with Operation (Close + Open)
4	ok	Check the Electrical Emergency Stop of the Outgoing during External Field from T.B
5	ok	Check the status for Outgoing from T.B

### Tests-T Trip Units:


Outgoing Number: B3-Q4	Outgoing Rate: 30KW	Type of Topical: A1.12
Rating Current : 65A	Trip Class:10	Full Load Current:5A

Function	Enable	I Adjusted	I injected	T adjusted	T measured
Thermal Over load	DT	100%	5.3A	5 Sec	5.013SEC
F49					
Earth Fault	DT	1A	1.2A	500ms	512 MS
F50G					
Imbalance	DT	-	-	-	-
F46					
Over Current	N/A	-	-	-	-
F51					
Long Start	DT	100%	5.2A	5 Sec	5.017 SEC
F51R					
Jam	DT	200%	10.5A	5 Sec	5.012 SEC
F51S					

Not's: Before the Insulation Resistance Test Must be remove the cable for Fuse Monitor

Test Info	Name	Company	Date	Signature
Comm. supervisor	Mahmoud abd elnour	Schneider	30/6/2021	
Customer:	Eng.Ahmed nadeem	Enppi	30/6/2021	
PRC:	Eng.mohamed ibrahem	PP.C	30/6/2021	



	Operation and Test of	Ref: LV-B3-Q5
	Drawer Outgoing Feeder	

Date : 27 / 6 / 2021	Customer : ENPPI
Site Location: 6- Agrod Area 031-SUB-LVSWG-1	Project : EGPC Crude oil Tank Farm
Order Number : S2000	Equipment Tag: Blokset
Rated Voltage: 400V	Service voltage : 400V

### Functional operational tests for LV Outgoing

Mechanical and Electrical inspection		
DESCRIPTION	STATUS	NOTE
1	ok	Check the Mechanical Operation for Drawer (Connect, Test, Disconnect) and Interlock.
1	ok	Insure that the auxiliary supply required for the operation is connected.
2	ok	Check the Electrical closing/opening and Interlock of the Outgoing (Local & Remote) from HMI and T.B
3	Ok	Check the electrical indicators which are present with Operation (Close + Open)
4	ok	Check the Electrical Emergency Stop of the Outgoing during External Field from T.B
5	ok	Check the status for Outgoing from T.B


### Tests-T Trip Units:

Outgoing Number: B3-Q5	Outgoing Rate: 30KW	Type of Topical: A1.12
Rating Current : 65A	Trip Class:10	Full Load Current:5A

Function	Enable	I Adjusted	I injected	T adjusted	T measured
Thermal Over load	DT	100%	5.3A	5 Sec	5.012SEC
Earth Fault	DT	1A	1.2A	500ms	519 MS
Imbalance	DT	-	-	-	-
Over Current	N/A	-	-	-	-
Long Start	DT	100%	5.2A	5 Sec	5.016 SEC
Jam	DT	200%	10.5A	5 Sec	5.010 SEC

Not's: Before the Insulation Resistance Test Must be remove the cable for Fuse Monitor

Test Info	Name	Company	Date	Signature
Comm. supervisor	Mahmoud abd elnour	Schneider	30/6/2021	
Customer:	Eng.Ahmed nadeem	ENPPI	30/6/2021	
RPC:	Eng.mohamed ibrahem	AP.C	30/6/2021	

	Operation and Test of	Ref: LV-Q2-Q1
	Drawer Outgoing Feeder	

Date : 27 / 6 / 2021	Customer : ENPPI
Site Location: 6- Agrud Area 031-SUB-LVSWG-1	Project : EGPC Crude oil Tank Farm
Order Number : S2000	Equipment Tag: Blockset
Rated Voltage: 400V	Service Voltage : 400V

### Functional operational tests for LV Outgoing

### Mechanical and Electrical inspection

DESCRIPTION	STATUS	NOTE
1	ok	Check the Mechanical Operation for Drawer (Connect, Test, Disconnect) and Interlock.
1	ok	Insure that the auxiliary supply required for the operation is connected.
2	ok	Check the Electrical closing/opening and Interlock of the Outgoing (Local & Remote) from HMI and T.B
3	OK	Check the electrical indicators which are present with Operation (Close + Open)
4	ok	Check the Electrical Emergency Stop of the Outgoing during External Field from T.B
5	ok	Check the status for Outgoing from T.B

### Tests-T Trip Units:


Outgoing Number: Q2-Q1	Outgoing Rate: 4.4KW	Type of Topical: A1.12
Rating Current : 30A	Trip Class: 10	Full Load Current: 5A

Function	Enable	I Adjusted	I injected	T adjusted	T measured
Thermal Over load	DT	100%	5.3A	5 Sec	5.010 SEC
Earth Fault	DT	1A	1.2A	500ms	510 MS
Imbalance	DT	-	-	-	-
F46	DT	-	-	-	-
Over Current	N/A	-	-	-	-
F51	N/A	-	-	-	-
Long Start	DT	100%	5.2A	5 Sec	5.019 SEC
F51R	DT	200%	10.5A	5 Sec	5.015 SEC
Jam	DT	200%	10.5A	5 Sec	5.015 SEC

Not's: Before the Insulation Resistance Test Must be remove the cable for Fuse Monitor

Test Info	Name	Company	Date	Signature
Comm. supervisor	Mahmoud abd elnour	Schneider	30/6/2021	
Customer:	Eng.Ahmed nadeem	ENPPI	30/6/2021	
PRC:	Eng.mohamed ibrahem	BP	30/6/2021	



	Operation and Test of	Ref: LV-Q2-Q2 Drawer Outgoing Feeder

Date : 27 / 6 / 2021	Customer : ENPPI
Site Location: 6- Agrod Area 031-SUB-LV5WG-1	Project : EGPC Crude oil Tank Farm
Order Number : S2000	Equipment Tag: Blokset
Rated Voltage: 400V	Service voltage : 400V

### Functional operational tests for LV Outgoing

Mechanical and Electrical inspection		
DESCRIPTION	STATUS	NOTE
1	Check the Mechanical Operation for Drawer (Connect, Test, Disconnect) and Interlock.	ok
1	Insure that the auxiliary supply required for the operation is connected.	ok
2	Check the Electrical closing/opening and Interlock of the Outgoing (Local & Remote) from HMI and T.B	ok
3	Check the electrical indicators which are present with Operation (Close + Open)	Ok
4	Check the Electrical Emergency Stop of the Outgoing during External Field from T.B	ok
5	Check the status for Outgoing from T.B	ok


### Tests-T Trip Units:

Outgoing Number: Q2-Q2	Outgoing Rate: 5.5KW	Type of Topical: A1.12
Rating Current : 30A	Trip Class:10	Full Load Current:5A

Function	Enable	I Adjusted	I injected	T adjusted	T measured
Thermal Over load	DT	100%	5.3A	5 Sec	5.014 SEC
Earth Fault	DT	1A	1.2A	500ms	510 MS
Imbalance	DT	-	-	-	-
F46	DT	-	-	-	-
Over Current	N/A	-	-	-	-
F51					
Long Start	DT	100%	5.2A	5 Sec	5.019 SEC
F51R					
Jam	DT	200%	10.5A	5 Sec	5.011 SEC
F51S					

Not's: Before the Insulation Resistance Test Must be remove the cable for Fuse Monitor

Test Info	Name	Company	Date	Signature
Comm. supervisor	Mahmoud abd elnour	Schneider	30/6/2021	
Customer:	Eng. Ahmed nadeem	Enppi	30/6/2021	
RPC:	Eng. mohammed ibrahim	BP.C	30/6/2021	

	Operation and Test of	Ref: LV-Q2-Q3
	Drawer Outgoing Feeder	

Date : 27 / 6 / 2021	Customer : ENPPI
Site Location: 6- Agrood Area 031-SUB-LVSWG-1	Project : EGPC Crude oil Tank Farm
Order Number : S2000	Equipment Tag: Blockset
Rated Voltage: 400V	Service voltage : 400V

### Functional operational tests for LV Outgoing

Mechanical and Electrical inspection		
DESCRIPTION	STATUS	NOTE
1	Check the Mechanical Operation for Drawer (Connect, Test, Disconnect) and Interlock.	ok
1	Insure that the auxiliary supply required for the operation is connected.	ok
2	Check the Electrical closing/opening and Interlock of the Outgoing (Local & Remote) from HMI and T.B	ok
3	Check the electrical indicators which are present with Operation (Close + Open)	Ok
4	Check the Electrical Emergency Stop of the Outgoing during External Field from T.B	ok
5	Check the status for Outgoing from T.B	ok

### Tests-T Trip Units:


Outgoing Number: Q2-Q3	Outgoing Rate: 5.5KW	Type of Topical: A1.12
Rating Current : 40A	Trip Class:10	Full Load Current:5A

Function	Enable	I Adjusted	I injected	T adjusted	T measured
Thermal Over load	DT	100%	5.3A	5 Sec	5.015 SEC
Earth Fault	DT	1A	1.2A	500ms	511 MS
Imbalance	DT	-	-	-	-
F46	DT	-	-	-	-
Over Current	N/A	-	-	-	-
F51	-	-	-	-	-
Long Start	DT	100%	5.2A	5 Sec	5.013 SEC
F51R	DT	200%	10.5A	5 Sec	5.012 SEC
Jam	DT	200%	10.5A	5 Sec	5.012 SEC

Not's: Before the Insulation Resistance Test Must be remove the cable for Fuse Monitor

Test Info	Name	Company	Date	Signature
Comm. supervisor	Mahmoud abd elnour	Schneider	30/6/2021	M.H.
Customer:	Eng.Ahmed nadeem	ENPPI	30/6/2021	A.H.
PPC:	Eng.mohamed ibrahem	PP.C	30/6/2021	M.H.



	Operation and Test of	Ref: LV-Q2-Q4
	Drawer Outgoing Feeder	

Date : 27 / 6 / 2021	Customer : ENPPI
Site Location: 6- Agrud Area 031-SUB-LVSWG-1	Project : EGPC Crude oil Tank Farm
Order Number : S2000	Equipment Tag: Blokset
Rated Voltage: 400V	Service Voltage : 400V

### Functional operational tests for LV Outgoing

Mechanical and Electrical inspection		
DESCRIPTION	STATUS	NOTE
1	ok	Check the Mechanical Operation for Drawer (Connect, Test, Disconnect) and Interlock.
1	ok	Insure that the auxiliary supply required for the operation is connected.
2	ok	Check the Electrical closing/opening and Interlock of the Outgoing (Local & Remote) from HMI and T.B
3	Ok	Check the electrical indicators which are present with Operation (Close + Open)
4	ok	Check the Electrical Emergency Stop of the Outgoing during External Field from T.B
5	ok	Check the status for Outgoing from T.B


### Tests-T Trip Units:

Outgoing Number: Q2-Q4	Outgoing Rate: 30KW	Type of Topical: A1.12
Rating Current : 65A	Trip Class:10	Full Load Current:5A

Function	Enable	I Adjusted	I injected	T adjusted	T measured
Thermal Over load	DT	100%	5.3A	5 Sec	5.010 SEC
Earth Fault	DT	1A	1.2A	500ms	517 MS
Imbalance	DT	-	-	-	-
F46	DT	-	-	-	-
Over Current	N/A	-	-	-	-
F51					
Long Start	DT	100%	5.2A	5 Sec	5.012 SEC
Jam	DT	200%	10.5A	5 Sec	5.015 SEC

Not's: Before the Insulation Resistance Test Must be remove the cable for Fuse Monitor

Test Info	Name	Company	Date	Signature
Comm. supervisor	Mahmoud abd elnour	Schneider	30/6/2021	
Customer:	Eng. Ahmed nadeem	ENPPI	30/6/2021	
PPC:	Eng. Mohamed Ibrahim	PPC	30/6/2021	

	Operation and Test of	Drawer Outgoing Feeder
	Ref: LV-Q2-Q5	

Date : 27 / 6 / 2021	Customer : ENPPI
Site Location: 6- Agrod Area 031-SUB-LVSWG-1	Project : EGPC Crude oil Tank Farm
Order Number : S2000	Equipment Tag: Blokset
Rated Voltage: 400V	Service voltage : 400V

#### Functional operational tests for LV Outgoing

Mechanical and Electrical inspection		
DESCRIPTION	STATUS	NOTE
1	ok	Check the Mechanical Operation for Drawer (Connect, Test, Disconnect) and Interlock.
1	ok	Insure that the auxiliary supply required for the operation is connected.
2	ok	Check the Electrical closing/opening and interlock of the Outgoing (Local & Remote) from HMI and T.B
3	Ok	Check the electrical indicators which are present with Operation (Close + Open)
4	ok	Check the Electrical Emergency Stop of the Outgoing during External Field from T.B
5	ok	Check the status for Outgoing from T.B

#### Tests-T Trip Units:



Outgoing Number: Q2-Q5	Outgoing Rate: 30KW	Type of Topical: A1.12
Rating Current : 65A	Trip Class:10	Full Load Current:5A


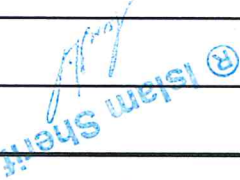
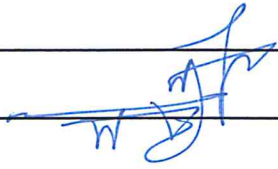
Function	Enable	I Adjusted	I injected	T adjusted	T measured
Thermal Over load	DT	100%	5.3A	5 Sec	5.012 SEC
Earth Fault	DT	1A	1.2A	500ms	518 MS
Imbalance	DT	-	-	-	-
F46	DT	-	-	-	-
Over Current	N/A	-	-	-	-
F51	-	-	-	-	-
Long Start	DT	100%	5.2A	5 Sec	5.014 SEC
F51R	DT	200%	10.5A	5 Sec	5.013 SEC
Jam	DT	200%	10.5A	5 Sec	5.013 SEC
F51S	DT	200%	10.5A	5 Sec	5.013 SEC

Not's: Before the Insulation Resistance Test Must be remove the cable for Fuse Monitor

Test Info	Name	Company	Date	Signature
Comm. supervisor	Mahmoud abd elnour	Schneider	30/6/2021	
Customer:	Eng. Ahmed nadeem	ENPPI	30/6/2021	
PPC:	Eng. Mohamed Ibrahim	PPC	30/6/2021	



<div><div><div>Enppi PETROJET</div></div><div>Project: 01251-100 CRUDE OIL TANK FARM PROJECT (AGROOD AREA)</div><div></div></div>		System ID	030-EI-005	System Description	Substation 400V Low Voltage Motor Control Center System
<div>12.10- Electrical Pre-Commissioning Check Lists</div>					

PRE-COMMISSIONING CHECK LIST			
LOW VOLTAGE CABLES			
EL-30 A			
PROJECT TITLE : EGPC CRUDE OIL TANK FARMS PROJECT (AGROOD AREA 30) (MODULE 01)			
PROJECT NUMBER : 1251-100			
SYSTEM NAME : Substation 400V Low Voltage Motor Control Center System		SYSTEM ID : 030-EL-005	
SUB-SYSTEM NAME : Substation 400V Low Voltage Motor Control Center System		SUB-SYSTEM ID : 030-EL-005	
ITEM TAG No. : C1-030-SUB-LVSWG-1B		AREA : 30	
REF. DWGS/DOCS :			
No.	DESCRIPTION	RESULT	ITEM No.
1	Construction punch list to be checked.	✓	
2	Check cables are correctly fixed to trays and supports.	✓	
3	Check cables through walls or ceilings are correctly sealed.	NA	
4	Check that all cables (power/ control) are installed in accordance with cable lists and approved documents.	✓	
5	Check identification tags of all conductors and wires.	✓	
6	Check connection, tightness, termination and joints of cables are correctly executed.	✓	
7	Check where conductors have been terminated using crimped connections; ensure the correct size and type of crimping lugs.	✓	
8	Check that the bending radius of cables is not less than the minimum established.	✓	
9	Cable markers to be installed before covering buried cables or cables in cable trays.	✓	
10	The wraps to be used for cable and wires fixation.	✓	
11	Cable connections shall be torque tested.	NA	
REMARKS AND OBSERVATIONS :			
OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.			
COMPANY	PETROJET	ENPPI	PMC
NAME			
SIGNATURE			
DATE			

**PRE-COMMISSIONING CHECK LIST**  
**LOW VOLTAGE CABLES**  
**EL-30 A**

**PROJECT TITLE** : EGPC CRUDE OIL TANK FARMS PROJECT (AGROOD AREA 30) (MODULE 01)

**PROJECT NUMBER** : 1251-100

**SYSTEM NAME** : Substation 400V Low Voltage Motor Control Center System

**SYSTEM ID** : 030-EL-005

**SUB-SYSTEM NAME** : Substation 400V Low Voltage Motor Control Center System

**SUB-SYSTEM ID** : 030-EL-005

**ITEM TAG No.** : C1-030-SUB-LVSWG-1B

**AREA** : 30

**REF. DWGS/DOCS** :

No.	DESCRIPTION	OK/NA/PL	ITEM No.
		RESULT	PL

12 Check that buried cables are correctly covered and protected.

NA

13 Trench markers to be checked w.r.t approved documents.

NA

14 Check cable glands for tightness & check the correct type of gland has been used for the size and type of installed cables.

✓

15 Inspect cable laid in trenches, segregation and protection.

✓

16 Cables to be tested (continuity/insulation resistance). (\*)

✓

17 Equipment test report and inspection certificate to be checked.

NA

18 Check availability of vendor documents, including commissioning and start-up instructions. (If Any)

NA

19 Calibration test certificate of testing equipment to be checked.

✓

**REMARKS AND OBSERVATIONS :**

(\*) Refer to table (III).

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

COMPANY	PETROJET	ENPPI	PMC
NAME			
SIGNATURE			
DATE			

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**NOTES:** Manufacturer's test voltage & minimum values for insulation resistance should be referenced.

TABLE III

[illegible]

**PRE-COMMISSIONING CHECK LIST**  
**LOW VOLTAGE CABLES**  
**EL-30 A**

## INSULATION TEST

## LOW VOLTAGE CABLES

PRE-COMMISSIONING CHECK LIST			
LOW VOLTAGE CABLES			
EL-30 A			
PROJECT TITLE : EGPC CRUDE OIL TANK FARMS PROJECT (AGROOD AREA 30) (MODULE 01)			
PROJECT NUMBER : 1251-100			
SYSTEM NAME : Substation 400V Low Voltage Motor Control Center System		DISCIPLINE : Electrical	
SYSTEM ID : 030-EL-005		SYSTEM ID : 030-EL-005	
SUB-SYSTEM NAME : Substation 400V Low Voltage Motor Control Center System		SUB-SYSTEM ID : 030-EL-005	
ITEM TAG No. : 030-SUB-LVBD-1B		AREA : 30	
REF. DWGS/DOCS :			
No.	DESCRIPTION	RESULT	ITEM No.
1	Construction punch list to be checked.	✓	
2	Check cables are correctly fixed to trays and supports.	✓	
3	Check cables through walls or ceilings are correctly sealed.	NA	
4	Check that all cables (power/ control) are installed in accordance with cable lists and approved documents.	✓	
5	Check identification tags of all conductors and wires.	✓	
6	Check connection, tightness, termination and joints of cables are correctly executed.	✓	
7	Check where conductors have been terminated using crimped connections; ensure the correct size and type of crimping lugs.	✓	
8	Check that the bending radius of cables is not less than the minimum established.	✓	
9	Cable markers to be installed before covering buried cables or cables in cable trays.	✓	
10	Tie wraps to be used for cable and wires fixation.	✓	
11	Cable connections shall be torque tested.	NA	
REMARKS AND OBSERVATIONS :			
OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.			
COMPANY	PETROJET	ENPPI	PMC
NAME			
SIGNATURE			
DATE			

**PRE-COMMISSIONING CHECK LIST**  
**LOW VOLTAGE CABLES**  
**EL-30 A**

**PROJECT TITLE** : EGPC CRUDE OIL TANK FARMS PROJECT (AGROOD AREA 30) (MODULE 01)

**PROJECT NUMBER** : 1251-100

**SYSTEM NAME** : Substation 400V Low Voltage Motor  
Control Center System

**SUB-SYSTEM NAME** : Substation 400V Low Voltage Motor  
Control Center System

**ITEM TAG No.** : 030-SUB-LVBD-1B

**AREA** : 30

**REF. DWGS/DOCS** :

No.	DESCRIPTION	OK/NA/PL	ITEM No.
		RESULT	PL

12	Check that buried cables are correctly covered and protected.	NA	
13	Trench markers to be checked w.r.t approved documents.	NA	
14	Check cable glands for tightness & check the correct type of gland has been used for the size and type of installed cables.	✓	
15	Inspect cable laid in trenches, segregation and protection.	✓	
16	Cables to be tested (continuity/insulation resistance). (*)	✓	
17	Equipment test report and inspection certificate to be checked.	NA	
18	Check availability of vendor documents, including commissioning and start-up instructions. (If Any)	NA	
19	Calibration test certificate of testing equipment to be checked.	✓	

**REMARKS AND OBSERVATIONS :**

(\*) Refer to table (III).

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

COMPANY	PETROJET	ENPPI	PMC
NAME			
SIGNATURE			
DATE			

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NOTES:

Manufacturer's test voltage & minimum values for insulation resistance should be referenced.

TABLE [III]

1000V	1000V	200
CABLE VOLTAGE LEVEL	D.C TEST VOLTAGE	MINIMUM INSULATION RESISTANCE (M.OHMS).

INSULATION TEST  
LOW VOLTAGE CABLES

PRE-COMMISSIONING CHECK LIST  
LOW VOLTAGE CABLES  
EL-30 A



**PRE-COMMISSIONING CHECK LIST**  
**LOW VOLTAGE CABLES**  
**EL-30 A**

**PROJECT TITLE** : EGPC CRUDE OIL TANK FARMS PROJECT (AGROOD AREA 30) (MODULE 01)

**PROJECT NUMBER** : 1251-100

**DISCIPLINE** : Electrical

**SYSTEM NAME** : Substation 400V Low Voltage Motor Control Center System

**SYSTEM ID** : 030-EL-005

**SUB-SYSTEM NAME** : Substation 400V Low Voltage Motor Control Center System

**SUB-SYSTEM ID** : 030-EL-005

**ITEM TAG No.** : P1-030-SUB-LVSWG-1B

**AREA** : 30

**REF. DWGS/DOCS** :

No.	DESCRIPTION	RESULT	ITEM No.
		OK/NA/PL	

1	Construction punch list to be checked.	✓	
2	Check cables are correctly fixed to trays and supports.	✓	
3	Check cables through walls or ceilings are correctly sealed.	NA	
4	Check that all cables (power/ control) are installed in accordance with cable lists and approved documents.	✓	
5	Check identification tags of all conductors and wires.	✓	
6	Check connection, tightness, termination and joints of cables are correctly executed.	✓	
7	Check where conductors have been terminated using crimped connections; ensure the correct size and type of crimping lugs.	✓	
8	Check that the bending radius of cables is not less than the minimum established.	✓	
9	Cable markers to be installed before covering buried cables or cables in cable trays.	✓	
10	The wraps to be used for cable and wires fixation.	✓	
11	Cable connections shall be torque tested.	NA	

**REMARKS AND OBSERVATIONS :**

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	PETROJET	ENPPI	PMC
NAME			
SIGNATURE			
DATE			

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PRE-COMMISSIONING CHECK LIST			
LOW VOLTAGE CABLES			
EL-30 A			
PROJECT TITLE : EGPC CRUDE OIL TANK FARMS PROJECT (AGROOD AREA 30) (MODULE 01)			
PROJECT NUMBER : 1251-100		DISCIPLINE : Electrical	
SYSTEM NAME : Substation 400V Low Voltage Motor Control Center System		SYSTEM ID : 030-EL-005	
SUB-SYSTEM NAME : Substation 400V Low Voltage Motor Control Center System		SUB-SYSTEM ID : 030-EL-005	
ITEM TAG No. : P1-030-SUB-LVSWG-1B		AREA : 30	
REF. DWGS/DOCS :			
No.	DESCRIPTION	RESULT	ITEM No.
12	Check that buried cables are correctly covered and protected.	NA	
13	Trench markers to be checked w.r.t approved documents.	NA	
14	Check cable glands for tightness & check the correct type of gland has been used for the size and type of installed cables.	✓	
15	Inspect cable laid in trenches, segregation and protection.	✓	
16	Cables to be tested (continuity/insulation resistance). (*)	✓	
17	Equipment test report and inspection certificate to be checked.	NA	
18	Check availability of vendor documents, including commissioning and start-up instructions. (If Any)	NA	
19	Calibration test certificate of testing equipment to be checked.	✓	
REMARKS AND OBSERVATIONS : (*) Refer to table (III).			
OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.			
COMPANY	PETROJET	ENPPI	PMC
NAME			
SIGNATURE			
DATE			



NOTES: Manufacturer's test voltage & minimum values for insulation resistance should be referenced.

TABLE [III]

1000V	1000V	200
CABLE VOLTAGE LEVEL	D.C TEST VOLTAGE	MINIMUM INSULATION RESISTANCE (M.OHMS).

INSULATION TEST  
LOW VOLTAGE CABLES

PRE-COMMISSIONING CHECK LIST  
LOW VOLTAGE CABLES  
EL-30 A



**PRE-COMMISSIONING CHECK LIST**  
**LOW VOLTAGE CABLES**  
**EL-30 A**

**PROJECT TITLE** : EGPC CRUDE OIL TANK FARMS PROJECT (AGROOD AREA 30) (MODULE 01)

**PROJECT NUMBER** : 1251-100

**SYSTEM NAME** : Substation 400V Low Voltage Motor Control Center System

**SYSTEM ID** : 030-EL-005

**SUB-SYSTEM NAME** : Substation 400V Low Voltage Motor Control Center System

**SUB-SYSTEM ID** : 030-EL-005

**ITEM TAG No.** : P1-030-SUB-LVSWG-1A

**AREA** : 30

**REF. DWGS/DOCS** :

**No.**

**DESCRIPTION**

**RESULT**

**ITEM No.**

1 Construction punch list to be checked.

✓

2 Check cables are correctly fixed to trays and supports.

✓

3 Check cables through walls or ceilings are correctly sealed.

NA

4 Check that all cables (power/ control) are installed in accordance with cable lists and approved documents.

✓

5 Check identification tags of all conductors and wires.

✓

6 Check connection, tightness, termination and joints of cables are correctly executed.

✓

7 Check where conductors have been terminated using crimped connections; ensure the correct size and type of crimping lugs.

✓

8 Check that the bending radius of cables is not less than the minimum established.

✓

9 Cable markers to be installed before covering buried cables or cables in cable trays.

✓

10 Tie wraps to be used for cable and wires fixation.

✓

11 Cable connections shall be torque tested.

NA

**REMARKS AND OBSERVATIONS :**

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

**COMPANY**

PETROJET

ENPPI

PMC

**NAME**

**SIGNATURE**

**DATE**

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PRE-COMMISSIONING CHECK LIST			
LOW VOLTAGE CABLES			
EL-30 A			
PROJECT TITLE : EGPC CRUDE OIL TANK FARMS PROJECT (AGROOD AREA 30) (MODULE 01)			
PROJECT NUMBER : 1251-100		DISCIPLINE : Electrical	
SYSTEM NAME : Substation 400V Low Voltage Motor Control Center System		SYSTEM ID : 030-EL-005	
SUB-SYSTEM NAME : Substation 400V Low Voltage Motor Control Center System		SUB-SYSTEM ID : 030-EL-005	
ITEM TAG No. : P1-030-SUB-LVSWG-1A		AREA : 30	
REF. DWGS/DOCS :			
No.	DESCRIPTION	RESULT	OK/NA/PL
PL	ITEM No.		
12	Check that buried cables are correctly covered and protected.	NA	
13	Trench markers to be checked w.r.t approved documents.	NA	
14	Check cable glands for tightness & check the correct type of gland has been used for the size and type of installed cables.	✓	
15	Inspect cable laid in trenches, segregation and protection.	✓	
16	Cables to be tested (continuity/insulation resistance). (*)	✓	
17	Equipment test report and inspection certificate to be checked.	NA	
18	Check availability of vendor documents, including commissioning and start-up instructions. (If Any)	NA	
19	Calibration test certificate of testing equipment to be checked.	✓	
REMARKS AND OBSERVATIONS :			
(*) Refer to table (III).			
OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.			
COMPANY	PETROJET	ENPPI	PMC
NAME			
SIGNATURE			
DATE			

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Manufacturer's test voltage & minimum values for insulation resistance should be referenced.

NOTES:

TABLE (III)

200	1000V	1000V
MINIMUM INSULATION RESISTANCE (M.OHMS).	D.C TEST VOLTAGE	CABLE VOLTAGE LEVEL

LOW VOLTAGE CABLES  
INSULATION TEST

PRE-COMMISSIONING CHECK LIST  
LOW VOLTAGE CABLES  
EL-30 A





PRE-COMMISSIONING CHECK LIST			
LOW VOLTAGE CABLES			
EL-30 A			
<b>PROJECT TITLE</b> : EGPC CRUDE OIL TANK FARMS PROJECT (AGROOD AREA 30) (MODULE 01)			
<b>PROJECT NUMBER</b> : 1251-100		<b>DISCIPLINE</b> : Electrical	
<b>SYSTEM NAME</b> : Substation 400V Low Voltage Motor		<b>SYSTEM ID</b> : 030-EL-005	
<b>SUB-SYSTEM NAME</b> : Substation 400V Low Voltage Motor		<b>SUB-SYSTEM ID</b> : 030-EL-005	
<b>ITEM TAG No.</b> : D-030-SUB-LVSWG-1B		<b>AREA</b> : 30	
<b>REF. DWGS/DOCS</b> :			
No.	DESCRIPTION	RESULT	ITEM No.
1	Construction punch list to be checked.	✓	
2	Check cables are correctly fixed to trays and supports.	✓	
3	Check cables through walls or ceilings are correctly sealed.	NA	
4	Check that all cables (power/ control) are installed in accordance with cable lists and approved documents.	✓	
5	Check identification tags of all conductors and wires.	✓	
6	Check connection, tightness, termination and joints of cables are correctly executed.	✓	
7	Check where conductors have been terminated using crimped connections; ensure the correct size and type of crimping lugs.	✓	
8	Check that the bending radius of cables is not less than the minimum established.	✓	
9	Cable markers to be installed before covering buried cables or cables in cable trays.	✓	
10	Tie wraps to be used for cable and wires fixation.	✓	
11	Cable connections shall be torque tested.	NA	
<b>REMARKS AND OBSERVATIONS :</b>			
OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.			
<b>COMPANY</b>	PETROJET	<b>ENPPI</b>	PMC
<b>NAME</b>			
<b>SIGNATURE</b>			
<b>DATE</b>			

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**PRE-COMMISSIONING CHECK LIST**  
**LOW VOLTAGE CABLES**  
**EL-30 A**

<b>PROJECT TITLE</b> : EGPC CRUDE OIL TANK FARMS PROJECT (AGROOD AREA 30) (MODULE 01)	
<b>PROJECT NUMBER</b> : 1251-100	<b>DISCIPLINE</b> : Electrical
<b>SYSTEM NAME</b> : Substation 400V Low Voltage Motor Control Center System	<b>SYSTEM ID</b> : 030-EL-005
<b>SUB-SYSTEM NAME</b> : Substation 400V Low Voltage Motor Control Center System	<b>SUB-SYSTEM ID</b> : 030-EL-005
<b>ITEM TAG No.</b> : D-030-SUB-LVSWG-1B	<b>AREA</b> : 30
<b>REF. DWGS/DOCS</b> :	

No.	DESCRIPTION		ITEM No.
	RESULT	OK/NA/PL	
12	Check that buried cables are correctly covered and protected.	NA	
13	Trench markers to be checked w.r.t approved documents.	NA	
14	Check cable glands for tightness & check the correct type of gland has been used for the size and type of installed cables.	✓	
15	Inspect cable laid in trenches, segregation and protection.	✓	
16	Cables to be tested (continuity/insulation resistance). (*)	✓	
17	Equipment test report and inspection certificate to be checked.	NA	
18	Check availability of vendor documents, including commissioning and start-up instructions. (If Any)	NA	
19	Calibration test certificate of testing equipment to be checked.	✓	

**REMARKS AND OBSERVATIONS :**

(\*) Refer to table (III).

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

<b>COMPANY</b>	PETROJET	<b>ENPPI</b>	PMC
<b>NAME</b>			
<b>SIGNATURE</b>			
<b>DATE</b>			

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PRE-COMMISSIONING CHECK LIST  
LOW VOLTAGE CABLES  
EL-30 A

INSULATION TEST

LOW VOLTAGE CABLES

CABLE VOLTAGE LEVEL	D.C TEST VOLTAGE	MINIMUM INSULATION RESISTANCE (M.OHMS).
1000V	1000V	200

TABLE [III]

NOTES:

Manufacturer's test voltage & minimum values for insulation resistance should be referenced.



**PRE-COMMISSIONING CHECK LIST**  
**LOW VOLTAGE CABLES**  
**EL-30 A**

**PROJECT TITLE** : EGPC CRUDE OIL TANK FARMS PROJECT (AGROOD AREA 30) (MODULE 01)

**PROJECT NUMBER** : 1251-100

**DISCIPLINE** : Electrical

**SYSTEM NAME** : Substation 400V Low Voltage Motor Control Center System

**SUB-SYSTEM NAME** : Substation 400V Low Voltage Motor Control Center System

**ITEM TAG No.** : D-030-SUB-LVSWG-1A

**AREA** : 30

**REF. DWGS/DOCS** :

**No.**

**DESCRIPTION**

**RESULT**

**OK/NA/PL**

**ITEM No.**

1 Construction punch list to be checked.

2 Check cables are correctly fixed to trays and supports.

3 Check cables through walls or ceilings are correctly sealed.

4 Check that all cables (power/ control) are installed in accordance with cable lists and approved documents.

5 Check identification tags of all conductors and wires.

6 Check connection, tightness, termination and joints of cables are correctly executed.

7 Check where conductors have been terminated using crimped connections; ensure the correct size and type of crimping lugs.

8 Check that the bending radius of cables is not less than the minimum established.

9 Cable markers to be installed before covering buried cables or cables in cable trays.

10 Tie wraps to be used for cable and wires fixation.

11 Cable connections shall be torque tested.

**REMARKS AND OBSERVATIONS :**

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	PETROJET	ENPPI	PMC
NAME			
SIGNATURE			
DATE			



PRE-COMMISSIONING CHECK LIST			
LOW VOLTAGE CABLES			
EL-30 A			
PROJECT TITLE : EGPC CRUDE OIL TANK FARMS PROJECT (AGROOD AREA 30) (MODULE 01)			
PROJECT NUMBER : 1251-100		DISCIPLINE : Electrical	
SYSTEM NAME : Substation 400V Low Voltage Motor Control Center System		SYSTEM ID : 030-EL-005	
SUB-SYSTEM NAME : Substation 400V Low Voltage Motor Control Center System		SUB-SYSTEM ID : 030-EL-005	
ITEM TAG No. : D-030-SUB-LVSWG-1A		AREA : 30	
REF. DWGS/DOCS :			
No.	DESCRIPTION	RESULT	ITEM No.
12	Check that buried cables are correctly covered and protected.	NA	
13	Trench markers to be checked w.r.t approved documents.	NA	
14	Check cable glands for tightness & check the correct type of gland has been used for the size and type of installed cables.	✓	
15	Inspect cable laid in trenches, segregation and protection.	✓	
16	Cables to be tested (continuity/insulation resistance). (*)	✓	
17	Equipment test report and inspection certificate to be checked.	NA	
18	Check availability of vendor documents, including commissioning and start-up instructions. (If Any)	NA	
19	Calibration test certificate of testing equipment to be checked.	✓	
REMARKS AND OBSERVATIONS :			
(*) Refer to table (III).			
OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.			
COMPANY	PETROJET	ENPPI	PMC
NAME			
SIGNATURE			
DATE			

## LOW VOLTAGE CABLES

EL-30 A

## INSULATION TEST

## LOW VOLTAGE CABLES

NOTES:

TABLE [III]

PRE-COMMISSIONING CHECK LIST  
LOW VOLTAGE CABLES  
EL-30 A

PROJECT TITLE : EGPC CRUDE OIL TANK FARMS PROJECT (AGROOD AREA 30) (MODULE 01)

PROJECT NUMBER : 1251-100

DISCIPLINE : Electrical

SYSTEM NAME : Substation 400V Low Voltage Motor

SYSTEM ID : 030-EL-005

SUB-SYSTEM NAME : Substation 400V Low Voltage Motor

SUB-SYSTEM ID : 030-EL-005

ITEM TAG No. : 030-SUB-LVSWG-1

AREA : 30

REF. DWGS/DOCS :

No. DESCRIPTION

PL	RESULT	OK/NA/PL	ITEM No.
----	--------	----------	----------

1	Construction punch list to be checked.	✓	
2	Check cables are correctly fixed to trays and supports.	✓	
3	Check cables through walls or ceilings are correctly sealed.	NA	
4	Check that all cables (power/ control) are installed in accordance with cable lists and approved documents.	✓	
5	Check identification tags of all conductors and wires.	✓	
6	Check connection, tightness, termination and joints of cables are correctly executed.	✓	
7	Check where conductors have been terminated using crimped connections; ensure the correct size and type of crimping lugs.	✓	
8	Check that the bending radius of cables is not less than the minimum established.	✓	
9	Cable markers to be installed before covering buried cables or cables in cable trays.	✓	
10	Tie wraps to be used for cable and wires fixation.	✓	
11	Cable connections shall be torque tested.	NA	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	PETROJET	ENPPI	PMC
NAME			
SIGNATURE			
DATE			

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**PRE-COMMISSIONING CHECK LIST**  
**LOW VOLTAGE CABLES**  
**EL-30 A**

**PROJECT TITLE :** EGPC CRUDE OIL TANK FARMS PROJECT (AGROOD AREA 30) (MODULE 01)

**PROJECT NUMBER :** 1251-100

**DISCIPLINE :** Electrical

**SYSTEM NAME :** Substation 400V Low Voltage Motor Control Center System

**SUB-SYSTEM NAME :** Substation 400V Low Voltage Motor Control Center System

**ITEM TAG No. :** 030-SUB-LVSWG-1

**AREA :** 30

**REF. DWGS/DOCS :**

**No.**

**DESCRIPTION**

**RESULT**

**ITEM No.**

12 Check that buried cables are correctly covered and protected.

NA

13 Trench markers to be checked w.r.t approved documents.

NA

14 Check cable glands for tightness & check the correct type of gland has been used for the size and type of installed cables.

✓

15 Inspect cable laid in trenches, segregation and protection.

✓

16 Cables to be tested (continuity/insulation resistance). (\*)

✓

17 Equipment test report and inspection certificate to be checked.

NA

18 Check availability of vendor documents, including commissioning and start-up instructions. (If Any)

NA

19 Calibration test certificate of testing equipment to be checked.

✓

**REMARKS AND OBSERVATIONS :**

(\*) Refer to table (III).

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

**COMPANY**

PETROJET

ENPPI

PMC

**NAME**

**SIGNATURE**

**DATE**





PRE-COMMISSIONING CHECK LIST  
LOW VOLTAGE CABLES  
EL-30 A

INSULATION TEST

LOW VOLTAGE CABLES

CABLE VOLTAGE LEVEL	D.C TEST VOLTAGE	MINIMUM INSULATION RESISTANCE (M.OHMS).
1000V	1000V	200

TABLE [III]

NOTES:

Manufacturer's test voltage & minimum values for insulation resistance should be referenced.

PRE-COMMISSIONING CHECK LIST			
LOW VOLTAGE CABLES			
EL-30 A			
PROJECT TITLE : EGPC CRUDE OIL TANK FARMS PROJECT (AGROOD AREA 30) (MODULE 01)			
PROJECT NUMBER : 1251-100		DISCIPLINE : Electrical	
SYSTEM NAME : Substation 400V Low Voltage Motor Control Center System		SYSTEM ID : 030-EL-005	
SUB-SYSTEM NAME : Substation 400V Low Voltage Motor Control Center System		SUB-SYSTEM ID : 030-EL-005	
ITEM TAG No. : 030-SUB-LVBD-1A		AREA : 30	
REF. DWGS/DOCS :			
No.	DESCRIPTION	RESULT	ITEM No.
1	Construction punch list to be checked.	✓	
2	Check cables are correctly fixed to trays and supports.	✓	
3	Check cables through walls or ceilings are correctly sealed.	NA	
4	Check that all cables (power/ control) are installed in accordance with cable lists and approved documents.	✓	
5	Check identification tags of all conductors and wires.	✓	
6	Check connection, tightness, termination and joints of cables are correctly executed.	✓	
7	Check where conductors have been terminated using crimped connections; ensure the correct size and type of crimping lugs.	✓	
8	Check that the bending radius of cables is not less than the minimum established.	✓	
9	Cable markers to be installed before covering buried cables or cables in cable trays.	✓	
10	Tie wraps to be used for cable and wires fixation.	✓	
11	Cable connections shall be torque tested.	NA	
REMARKS AND OBSERVATIONS :			
OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.			
COMPANY	PETROJET	ENPPI	PMC
NAME			
SIGNATURE			
DATE			

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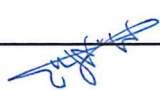
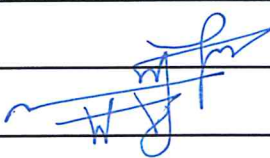
PRE-COMMISSIONING CHECK LIST			
LOW VOLTAGE CABLES			
EL-30 A			
PROJECT TITLE : EGPC CRUDE OIL TANK FARMS PROJECT (AGROOD AREA 30) (MODULE 01)			
PROJECT NUMBER : 1251-100			
SYSTEM NAME : Substation 400V Low Voltage Motor Control Center System		DISCIPLINE : Electrical	
SUB-SYSTEM NAME : Substation 400V Low Voltage Motor Control Center System		SYSTEM ID : 030-EL-005	
ITEM TAG No. : 030-SUB-LVBD-1A		SUB-SYSTEM ID : 030-EL-005	
REF. DWGS/DOCS :		AREA : 30	
No.	DESCRIPTION	RESULT	ITEM No.
12	Check that buried cables are correctly covered and protected.	NA	
13	Trench markers to be checked w.r.t approved documents.	NA	
14	Check cable glands for tightness & check the correct type of gland has been used for the size and type of installed cables.	✓	
15	Inspect cable laid in trenches, segregation and protection.	✓	
16	Cables to be tested (continuity/insulation resistance). (*)	✓	
17	Equipment test report and inspection certificate to be checked.	NA	
18	Check availability of vendor documents, including commissioning and start-up instructions. (If Any)	NA	
19	Calibration test certificate of testing equipment to be checked.	✓	
REMARKS AND OBSERVATIONS :			
(*) Refer to table (III).			
OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.			
COMPANY	PETROJET	ENPPI	PMC
NAME			
SIGNATURE			
DATE			



## LOW VOLTAGE CABLES

Manufacturer's test voltage & minimum values for insulation resistance should be referenced.

TABLE (iii)

PRE-COMMISSIONING CHECK LIST			
LOW VOLTAGE CABLES			
EL-30 A			
<b>PROJECT TITLE</b> : EGPC CRUDE OIL TANK FARMS PROJECT (AGROOD AREA 30) (MODULE 01)			
<b>PROJECT NUMBER</b> : 1251-100		<b>DISCIPLINE</b> : Electrical	
<b>SYSTEM NAME</b> : Substation 400V Low Voltage Motor Control Center System		<b>SYSTEM ID</b> : 030-EL-005	
<b>SUB-SYSTEM NAME</b> : Substation 400V Low Voltage Motor Control Center System		<b>SUB-SYSTEM ID</b> : 030-EL-005	
<b>ITEM TAG No.</b> : C2-030-SUB-LVSWG-1B		<b>AREA</b> : 30	
<b>REF. DWGS/DOCS</b> :			
No.	DESCRIPTION	RESULT	ITEM No.
1	Construction punch list to be checked.	✓	
2	Check cables are correctly fixed to trays and supports.	✓	
3	Check cables through walls or ceilings are correctly sealed.	NA	
4	Check that all cables (power/ control) are installed in accordance with cable lists and approved documents.	✓	
5	Check identification tags of all conductors and wires.	✓	
6	Check connection, tightness, termination and joints of cables are correctly executed.	✓	
7	Check where conductors have been terminated using crimped connections; ensure the correct size and type of crimping lugs.	✓	
8	Check that the bending radius of cables is not less than the minimum established.	✓	
9	Cable markers to be installed before covering buried cables or cables in cable trays.	✓	
10	The wraps to be used for cable and wires fixation.	✓	
11	Cable connections shall be torque tested.	NA	
<b>REMARKS AND OBSERVATIONS :</b>			
OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.			
<b>COMPANY</b>	<b>NAME</b>	<b>SIGNATURE</b>	<b>DATE</b>
PETROJET	ENPPI		
PMC			

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PRE-COMMISSIONING CHECK LIST			
LOW VOLTAGE CABLES			
EL-30 A			
PROJECT TITLE : EGPC CRUDE OIL TANK FARMS PROJECT (AGROOD AREA 30) (MODULE 01)			
PROJECT NUMBER : 1251-100			
SYSTEM NAME : Substation 400V Low Voltage Motor Control Center System		SYSTEM ID : 030-EL-005	
SUB-SYSTEM NAME : Substation 400V Low Voltage Motor Control Center System		SUB-SYSTEM ID : 030-EL-005	
ITEM TAG No. : C2-030-SUB-LVSWG-1B		AREA : 30	
REF. DWGS/DOCS :			
No.	DESCRIPTION	RESULT	ITEM No.
12	Check that buried cables are correctly covered and protected.	NA	
13	Trench markers to be checked w.r.t approved documents.	NA	
14	Check cable glands for tightness & check the correct type of gland has been used for the size and type of installed cables.	✓	
15	Inspect cable laid in trenches, segregation and protection.	✓	
16	Cables to be tested (continuity/insulation resistance). (*)	✓	
17	Equipment test report and inspection certificate to be checked.	NA	
18	Check availability of vendor documents, including commissioning and start-up instructions. (If Any)	NA	
19	Calibration test certificate of testing equipment to be checked.	✓	
REMARKS AND OBSERVATIONS :			
(*) Refer to table (III).			
OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.			
COMPANY	PETROJET	ENPPI	PMC
NAME			
SIGNATURE			
DATE			





PRE-COMMISSIONING CHECK LIST  
LOW VOLTAGE CABLES  
EL-30 A

INSULATION TEST

LOW VOLTAGE CABLES

CABLE VOLTAGE LEVEL	D.C TEST VOLTAGE	MINIMUM INSULATION RESISTANCE (M.OHMS).
1000V	1000V	200

TABLE [III]

NOTES:

Manufacturer's test voltage & minimum values for insulation resistance should be referenced.

# PRE-COMMISSIONING CHECK LIST

## LOW VOLTAGE CABLES

### EL-30 A

PROJECT TITLE : EGPC CRUDE OIL TANK FARMS PROJECT (AGROOD AREA 30) (MODULE 01)

PROJECT NUMBER : 1251-100

DISCIPLINE : Electrical

SYSTEM NAME : Substation 400V Low Voltage Motor

SYSTEM ID : 030-EL-005

SUB-SYSTEM NAME : Substation 400V Low Voltage Motor  
Control Center System

SUB-SYSTEM ID : 030-EL-005

ITEM TAG No. : C2-030-SUB-LVSWG-1A

AREA : 30

REF. DWGS/DOCS :

No.	DESCRIPTION	OK/NA/PL	ITEM No.
		RESULT	PL

1 Construction punch list to be checked.

✓

2 Check cables are correctly fixed to trays and supports.

✓

3 Check cables through walls or ceilings are correctly sealed.

NA

4 Check that all cables (power/ control) are installed in accordance with cable lists and approved documents.

✓

5 Check identification tags of all conductors and wires.

✓

6 Check connection, tightness, termination and joints of cables are correctly executed.

✓

7 Check where conductors have been terminated using crimped connections; ensure the correct size and type of crimping lugs.

✓

8 Check that the bending radius of cables is not less than the minimum established.

✓

9 Cable markers to be installed before covering buried cables or cables in cable trays.

✓

10 Tie wraps to be used for cable and wires fixation.

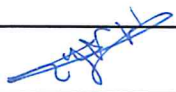
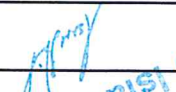
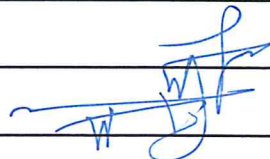
✓

11 Cable connections shall be torque tested.

NA

#### REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	PETROJET	ENPPI	PMC
NAME			
SIGNATURE			
DATE			

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PRE-COMMISSIONING CHECK LIST			
LOW VOLTAGE CABLES			
EL-30 A			
PROJECT TITLE : EGPC CRUDE OIL TANK FARMS PROJECT (AGROOD AREA 30) (MODULE 01)			
PROJECT NUMBER : 1251-100		DISCIPLINE : Electrical	
SYSTEM NAME : Substation 400V Low Voltage Motor		SYSTEM ID : 030-EL-005	
SUB-SYSTEM NAME : Substation 400V Low Voltage Motor		SUB-SYSTEM ID : 030-EL-005	
ITEM TAG No. : C2-030-SUB-LVSWG-1A		AREA : 30	
REF. DWGS/DOCS :			
No.	DESCRIPTION	RESULT	ITEM No.
12	Check that buried cables are correctly covered and protected.	N/A	
13	Trench markers to be checked w.r.t approved documents.	N/A	
14	Check cable glands for tightness & check the correct type of gland has been used for the size and type of installed cables.	✓	
15	Inspect cable laid in trenches, segregation and protection.	✓	
16	Cables to be tested (continuity/insulation resistance). (*)	✓	
17	Equipment test report and inspection certificate to be checked.	N/A	
18	Check availability of vendor documents, including commissioning and start-up instructions. (If Any)	N/A	
19	Calibration test certificate of testing equipment to be checked.	✓	
REMARKS AND OBSERVATIONS :			
(*) Refer to table (III).			
OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.			
COMPANY	PETROJET	ENPPI	PMC
NAME			
SIGNATURE			
DATE			

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**PRE-COMMISSIONING CHECK LIST  
LOW VOLTAGE CABLES  
EL-30 A**

**INSULATION TEST  
LOW VOLTAGE CABLES**

CABLE VOLTAGE LEVEL	D.C TEST VOLTAGE	MINIMUM INSULATION RESISTANCE (M.OHMS).
1000V	1000V	200

**TABLE [III]**

**NOTES:**

Manufacturer's test voltage & minimum values for insulation resistance should be referenced.

# PRE-COMMISSIONING CHECK LIST LOW VOLTAGE CABLES EL-30 A

PROJECT TITLE : EGPC CRUDE OIL TANK FARMS PROJECT (AGROOD AREA 30) (MODULE 01)

PROJECT NUMBER : 1251-100

DISCIPLINE : Electrical

SYSTEM NAME : Substation 400V Low Voltage Motor

SYSTEM ID : 030-EL-005

SUB-SYSTEM NAME : Substation 400V Low Voltage Motor

SUB-SYSTEM ID : 030-EL-005

ITEM TAG No. : C3-030-SUB-LVSWG-1A

AREA : 30

REF. DWGS/DOCS :

No.	DESCRIPTION	RESULT	
		OK/NA/PL	ITEM No.

1 Construction punch list to be checked.

2 Check cables are correctly fixed to trays and supports.

3 Check cables through walls or ceilings are correctly sealed.

4 Check that all cables (power/ control) are installed in accordance with cable lists and approved documents.

5 Check identification tags of all conductors and wires.

6 Check connection, tightness, termination and joints of cables are correctly executed.

7 Check where conductors have been terminated using crimped connections; ensure the correct size and type of crimping lugs.

8 Check that the bending radius of cables is not less than the minimum established.

9 Cable markers to be installed before covering buried cables or cables in cable trays.

10 Tie wraps to be used for cable and wires fixation.

11 Cable connections shall be torque tested.

## REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	PETROJET	ENPPI	PMC
NAME			
SIGNATURE			
DATE			

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PRE-COMMISSIONING CHECK LIST			
LOW VOLTAGE CABLES			
EL-30 A			
PROJECT TITLE : EGPC CRUDE OIL TANK FARMS PROJECT (AGROOD AREA 30) (MODULE 01)			
PROJECT NUMBER : 1251-100			
DISCIPLINE : Electrical		SYSTEM NAME : Substation 400V Low Voltage Motor	
SYSTEM ID : 030-EL-005		SUB-SYSTEM NAME : Substation 400V Low Voltage Motor	
SUB-SYSTEM ID : 030-EL-005		ITEM TAG No. : C3-030-SUB-LVSWG-1A	
AREA : 30		REF. DWGS/DOCS :	
DESCRIPTION		No.	
RESULT	OK/NA/PL	ITEM No.	
	NA	12	Check that buried cables are correctly covered and protected.
	NA	13	Trench markers to be checked w.r.t approved documents.
	✓	14	Check cable glands for tightness & check the correct type of gland has been used for the size and type of installed cables.
	✓	15	Inspect cable laid in trenches, segregation and protection.
	✓	16	Cables to be tested (continuity/insulation resistance). (*)
	NA	17	Equipment test report and inspection certificate to be checked.
	NA	18	Check availability of vendor documents, including commissioning and start-up instructions. (If Any)
	✓	19	Calibration test certificate of testing equipment to be checked.
REMARKS AND OBSERVATIONS :			
(*) Refer to table (III).			
OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.			
COMPANY	PETROJET	ENPPI	PMC
NAME			
SIGNATURE			
DATE			





**PRE-COMMISSIONING CHECK LIST**  
**LOW VOLTAGE CABLES**  
**EL-30 A**

**INSULATION TEST**

**LOW VOLTAGE CABLES**

CABLE VOLTAGE LEVEL	D.C TEST VOLTAGE	MINIMUM INSULATION RESISTANCE (M.OHMS).
1000V	1000V	200




**TABLE [III]**

**NOTES:**

Manufacturer's test voltage & minimum values for insulation resistance should be referenced.

PRE-COMMISSIONING CHECK LIST			
LOW VOLTAGE CABLES			
EL-30 A			
PROJECT TITLE : EGPC CRUDE OIL TANK FARMS PROJECT (AGROOD AREA 30) (MODULE 01)			
PROJECT NUMBER : 1251-100			
DISCIPLINE : Electrical		SYSTEM NAME : Substation 400V Low Voltage Motor Control Center System	
SYSTEM ID : 030-EL-005		SUB-SYSTEM NAME : Substation 400V Low Voltage Motor Control Center System	
SUB-SYSTEM ID : 030-EL-005		ITEM TAG No. : C3-030-SUB-LVSWG-1B	
AREA : 30		REF. DWGS/DOCS :	
No.	DESCRIPTION	RESULT	ITEM No.
1	Construction punch list to be checked.	✓	
2	Check cables are correctly fixed to trays and supports.	✓	
3	Check cables through walls or ceilings are correctly sealed.	NA	
4	Check that all cables (power/ control) are installed in accordance with cable lists and approved documents.	✓	
5	Check identification tags of all conductors and wires.	✓	
6	Check connection, tightness, termination and joints of cables are correctly executed.	✓	
7	Check where conductors have been terminated using crimped connections; ensure the correct size and type of crimping lugs.	✓	
8	Check that the bending radius of cables is not less than the minimum established.	✓	
9	Cable markers to be installed before covering buried cables or cables in cable trays.	✓	
10	The wraps to be used for cable and wires fixation.	✓	
11	Cable connections shall be torque tested.	NA	
REMARKS AND OBSERVATIONS :			
OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.			
COMPANY	PETROJET	ENPPI	PMC
NAME			
SIGNATURE			
DATE			

10000-Z-000-EK7-TMP-0014 (03/14)

PRE-COMMISSIONING CHECK LIST			
LOW VOLTAGE CABLES			
EL-30 A			
<b>PROJECT TITLE</b> : EGPC CRUDE OIL TANK FARMS PROJECT (AGROOD AREA 30) (MODULE 01)			
<b>PROJECT NUMBER</b> : 1251-100		<b>DISCIPLINE</b> : Electrical	
<b>SYSTEM NAME</b> : Substation 400V Low Voltage Motor		<b>SYSTEM ID</b> : 030-EL-005	
<b>SUB-SYSTEM NAME</b> : Substation 400V Low Voltage Motor		<b>SUB-SYSTEM ID</b> : 030-EL-005	
<b>ITEM TAG No.</b> : C3-030-SUB-LVSWG-1B		<b>AREA</b> : 30	
<b>REF. DWGS/DOCs</b> :			
<b>No.</b>		<b>DESCRIPTION</b>	
12	Check that buried cables are correctly covered and protected.	N/A	
13	Trench markers to be checked w.r.t approved documents.	N/A	
14	Check cable glands for tightness & check the correct type of gland has been used for the size and type of installed cables.	✓	
15	Inspect cable laid in trenches, segregation and protection.	N/A	
16	Cables to be tested (continuity/insulation resistance). (*)	✓	
17	Equipment test report and inspection certificate to be checked.	N/A	
18	Check availability of vendor documents, including commissioning and start-up instructions. (If Any)	N/A	
19	Calibration test certificate of testing equipment to be checked.	✓	
<b>REMARKS AND OBSERVATIONS :</b>			
(*) Refer to table (III).			
<b>OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.</b>			
<b>COMPANY</b>	PETROJET	ENPPI	PMC
<b>NAME</b>			
<b>SIGNATURE</b>			
<b>DATE</b>			

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**NOTES:**

Manufacturer's test voltage & minimum values for insulation resistance should be referenced.

**TABLE [III]**

1000V	1000V	200
CABLE VOLTAGE LEVEL	D.C TEST VOLTAGE	MINIMUM INSULATION RESISTANCE (M.OHMS).

**LOW VOLTAGE CABLES**

**INSULATION TEST**

**EL-30 A**

**LOW VOLTAGE CABLES**

**PRE-COMMISSIONING CHECK LIST**



# PRE-COMMISSIONING CHECK LIST LV SWITCHGEAR AND MOTOR CONTROL GEAR EL-04 A

PROJECT TITLE : EGPC CRUDE OIL TANK FARMS PROJECT (AGROOD AREA 30) (MODULE 01)

PROJECT NUMBER : 1251-100

DISCIPLINE : Electrical

SYSTEM NAME : Substation 400V Low Voltage Motor

SYSTEM ID : 030-EL-005

SUB-SYSTEM NAME : Substation 400V Low Voltage Motor  
Control Center System

SUB-SYSTEM ID : 030-EL-005

ITEM TAG No. : 030-SUB-LVSWG-1

AREA : 30

REF. DWGS/DOCS :

No.	DESCRIPTION	RESULT	
		OK/NA/PL	ITEM No.

1 GENERAL:

1.1 Construction punch list to be checked.

✓

1.2 Check switchgear assembly for alignment, levelness and foundation fixing details w.r.t approved supplier drawings.

✓

1.3 Check panels arrangement in accordance with approved drawings.

✓

1.4 Check switchgear nameplate details and labels as per approved documents.

✓

1.5 Confirm that switchgear equipment identification tag is placed against each one.

✓

1.6 Check gasket and seal for damage.

✓

1.7 Inspect all switchgear equipment for mechanical damage.

✓

1.8 All compartments to be cleaned internally & externally.

✓

1.9 Check that all connections are tight and secure.

✓

1.10 Remove any accidental connections between phases and from phases to ground.

✓

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY

PETROJET

ENPPI

PMC

NAME

SIGNATURE

DATE

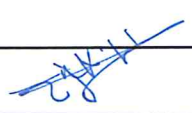
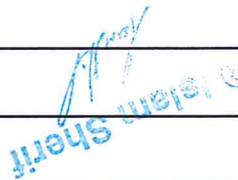
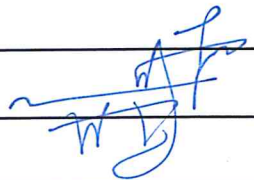
10000-Z-000-EK7-TMP-0016 (04/14)

PRE-COMMISSIONING CHECK LIST			
LV SWITCHGEAR AND MOTOR CONTROL GEAR			
PROJECT TITLE : EGPC CRUDE OIL TANK FARMS PROJECT (AGROOD AREA 30) (MODULE 01)			
PROJECT NUMBER : 1251-100			
DISCIPLINE : Electrical		SYSTEM NAME : Substation 400V Low Voltage Motor Control Center System	
SYSTEM ID : 030-EL-005		SUB-SYSTEM NAME : Substation 400V Low Voltage Motor Control Center System	
SUB-SYSTEM ID : 030-EL-005		ITEM TAG No. : 030-SUB-LVSWG-1	
AREA : 30		REF. DWGS/DOCS :	
No.	DESCRIPTION	RESULT	ITEM No.
1.11	Check all supports needed for power and control cables.	✓	
1.12	Check all cubicle door bonded to chassis.	✓	
1.13	Check manual spring charging and its mechanical indication.	NA	
1.14	Check polarity of D.C supplies.	NA	
1.15	Check cubicle anti-condensation heaters and test insulation resistance of panel heater (**)	NA	
1.16	Perform insulation-resistance tests (Megger Test) at the DC test voltage appropriate for each bus section, phase-to-phase & phase-to ground (*)	✓	
1.17	Perform insulation-resistance tests (Megger Test) at the DC test voltage appropriate for control wiring (*)	✓	
1.18	Equipment test report and inspection certificate to be checked.	✓	
1.19	Check availability of vendor documents including commissioning and start-up instructions.	NA	
2	BUS BAR:		
2.10	Check Bus duct(s) connections against the approved documents.	✓	
REMARKS AND OBSERVATIONS :			
(*) Refer to table [I] (**) 500 V megger, min. 10 MΩ (Manufacturer's test voltage & minimum values should be referenced)			
OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.			
COMPANY	PETROJET	ENPPI	PMC
NAME			
SIGNATURE			
DATE			

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PRE-COMMISSIONING CHECK LIST			
LV SWITCHGEAR AND MOTOR CONTROL GEAR			
EL-04 A			
PROJECT TITLE : EGPC CRUDE OIL TANK FARMS PROJECT (AGROOD AREA 30) (MODULE 01)			
PROJECT NUMBER : 1251-100		DISCIPLINE : Electrical	
SYSTEM NAME : Substation 400V Low Voltage Motor		SYSTEM ID : 030-EL-005	
SUB-SYSTEM NAME : Substation 400V Low Voltage Motor		SUB-SYSTEM ID : 030-EL-005	
ITEM TAG No. : 030-SUB-LVSWG-1		AREA : 30	
REF. DWGS/DOCS :			
No.		DESCRIPTION	
		RESULT	PL
ITEM TAG No.		DESCRIPTION	
3		CURRENT/VOLTAGE TRANSFORMER	
3.1		Check visually the connection, polarity and ratio.	✓
3.2		Check FAT certificates of Insulation resistance concerning primary and secondary winding.	NA
4		LV INCOMER & OUTGOING:	
4.1		Check mechanical alignment of C.B's and free movement.	✓
4.2		Check mechanical operation of circuit breakers (operation mechanism).	✓
4.3		Check inter-changeability of identical C.B's.	✓
4.4		Check FAT certificates of the protection relays.	NA
REMARKS AND OBSERVATIONS :			
OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.			
COMPANY	PETROJET	ENPPI	PMC
NAME			
SIGNATURE			
DATE			

PRE-COMMISSIONING CHECK LIST			
LV SWITCHGEAR AND MOTOR CONTROL GEAR			
EL-04 A			
PROJECT TITLE : EGPC CRUDE OIL TANK FARMS PROJECT (AGROOD AREA 30) (MODULE 01)			
PROJECT NUMBER : 1251-100			
DISCIPLINE : Electrical		SYSTEM NAME : Substation 400V Low Voltage Motor Control Center System	
SYSTEM ID : 030-EL-005		SUB-SYSTEM NAME : Substation 400V Low Voltage Motor Control Center System	
SUB-SYSTEM ID : 030-EL-005		ITEM TAG No. : 030-SUB-LVSWG-1	
AREA : 30		REF. DWGS/DOCS :	
No.	DESCRIPTION	OK/NA/PL	ITEM No.
PL	RESULT		
5	VOLTMETER/AMMETER/INSTRUMENT:		
5.1	Check metering circuit wiring.	✓	
6	EARTHING:		
6.1	Check switchgear earthing connections.	✓	
6.2	Check connection of gland plate to the earthing busbar.	✓	
6.3	Continuity tests shall be carried out on switchgear earth system joints in order to check their tightness.	✓	
REMARKS AND OBSERVATIONS :			
OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.			
COMPANY	PETROJET	ENPPI	PMC
NAME			
SIGNATURE			
DATE			

NOTES: Manufacturer's test voltage & minimum values for insulation resistance should be referenced

TABLE II

10	500	CONTROL WIRING
100	1000	0.4
100	1000	0.6
MINIMUM INSULATION RESISTANCE (M.OHMS)	TEST VOLTAGE (V) (ONE MINUTE)	EQUIPMENT RATED VOLTAGE (KV)

INSULATION TEST  
TABLE OF MINIMUM TEST VOLTAGES

PRE-COMMISSIONING CHECK LIST  
LV SWITCHGEAR AND MOTOR CONTROL GEAR  
EL-04 A





PRE-COMMISSIONING CHECK LIST			
LOW VOLTAGE CABLES			
EL-30 A			
PROJECT TITLE : EGPC CRUDE OIL TANK FARMS PROJECT (AGROOD AREA 30) (MODULE 01)			
PROJECT NUMBER : 1251-100			
DISCIPLINE : Electrical		SYSTEM NAME : Substation 400V Low Voltage Motor Control Center System	
SYSTEM ID : 030-EL-005		SUB-SYSTEM NAME : Substation 400V Low Voltage Motor Control Center System	
SUB-SYSTEM ID : 030-EL-005		ITEM TAG No. : C1-030-SUB-LVSWG-1A	
AREA : 30		REF. DWGS/DOCS :	
DESCRIPTION			
No.	RESULT	OK/NA/PL	ITEM No.
1	✓		Construction punch list to be checked.
2	✓		Check cables are correctly fixed to trays and supports.
3	NA		Check cables through walls or ceilings are correctly sealed.
4	✓		Check that all cables (power/ control) are installed in accordance with cable lists and approved documents.
5	✓		Check identification tags of all conductors and wires.
6	✓		Check connection, tightness, termination and joints of cables are correctly executed.
7	✓		Check where conductors have been terminated using crimped connections; ensure the correct size and type of crimping lugs.
8	✓		Check that the bending radius of cables is not less than the minimum established.
9	✓		Cable markers to be installed before covering buried cables or cables in cable trays.
10	✓		Tie wraps to be used for cable and wires fixation.
11	NA		Cable connections shall be torque tested.
REMARKS AND OBSERVATIONS :			
OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.			
COMPANY	PETROJET	ENPPI	PMC
NAME			
SIGNATURE			
DATE			

**PRE-COMMISSIONING CHECK LIST**  
**LOW VOLTAGE CABLES**  
**EL-30 A**

**PROJECT TITLE** : EGPC CRUDE OIL TANK FARMS PROJECT (AGROOD AREA 30) (MODULE 01)

**PROJECT NUMBER** : 1251-100

**DISCIPLINE** : Electrical

**SYSTEM NAME** : Substation 400V Low Voltage Motor Control Center System

**SYSTEM ID** : 030-EL-005

**SUB-SYSTEM NAME** : Substation 400V Low Voltage Motor Control Center System

**SUB-SYSTEM ID** : 030-EL-005

**ITEM TAG No.** : C1-030-SUB-LVSWG-1A

**AREA** : 30

**REF. DWGS/DOCS** :

No.	DESCRIPTION	RESULT	ITEM No.
		OK/NA/PL	

12	Check that buried cables are correctly covered and protected.	NA	
13	Trench markers to be checked w.r.t approved documents.	NA	
14	Check cable glands for tightness & check the correct type of gland has been used for the size and type of installed cables.	✓	
15	Inspect cable laid in trenches, segregation and protection.	✓	
16	Cables to be tested (continuity/insulation resistance). (*)	✓	
17	Equipment test report and inspection certificate to be checked.	NA	
18	Check availability of vendor documents, including commissioning and start-up instructions. (If Any)	NA	
19	Calibration test certificate of testing equipment to be checked.	✓	

**REMARKS AND OBSERVATIONS :**

(\*) Refer to table (III).

**OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.**

COMPANY	PETROJET	ENPPI	PMC
NAME			
SIGNATURE			
DATE			

10000-Z-000-EK7-TMP-0014 (03/14)

NOTES: Manufacturer's test voltage & minimum values for insulation resistance should be referenced.

TABLE (III)

1000V	1000V	200
CABLE VOLTAGE LEVEL	D.C TEST VOLTAGE	MINIMUM INSULATION RESISTANCE (M.OHMS).




LOW VOLTAGE CABLES  
INSULATION TEST

PRE-COMMISSIONING CHECK LIST  
LOW VOLTAGE CABLES  
EL-30 A







## 12.11- Electrical Supplier Check Lists & Reports


System ID	030-EL-005
System Description	Substation 400V Low Voltage Motor Control Center System
<div data-bbox="1133 1939 1410 2022">   </div> <div data-bbox="533 1939 1037 2000">           Project: 01251-100            CRUDE OIL TANK FARM PROJECT (AGROOD AREA)         </div> <div data-bbox="261 1926 456 2011">  </div>	

# 13- Electrical Commissioning

System ID	030-EI-005
System Description	Substation 400V Low Voltage Motor Control Center System



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



# 13.01 - Electrical -Commissioning Check Lists

System ID	030-EI-005
System Description	Substation 400V Low Voltage Motor Control Center System



Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)





# 13.02- Electrical Supplier Check Lists & Reports



System ID	030-EL-005
System Description	Substation 400V Low Voltage Motor Control Center System





Project: 01251-100  
CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



14- Red Marked-up Drawings


 Enppi PETROJET Project: 01251-100 CRUDE OIL TANK FARM PROJECT (AGROOD AREA) 	
System ID	030-EI-005
System Description	Substation 400V Low Voltage Motor Control Center System

 PETROJET Project: 01251-100 CRUDE OIL TANK FARM PROJECT (AGROOD AREA) 	
System ID	030-EL-005
System Description	Substation 400V Low Voltage Motor Control Center System

14.01- P&ID

# 14.02- Instrumentation Drawings


System ID	030-EL-005
System Description	Substation 400V Low Voltage Motor Control Center System



Enppi Petrojet

Project: 01251-100



CRUDE OIL TANK FARM PROJECT (AGROOD AREA)



Petrojet Refining Company



14.03- Electrical Drawings

System ID		030-EL-005
System Description		Substation 400V Low Voltage Motor Control Center System
 Emppi PETROJET		Project: 01251-100 CRUDE OIL TANK FARM PROJECT (AGROOD AREA)
 Petrojet Company		